



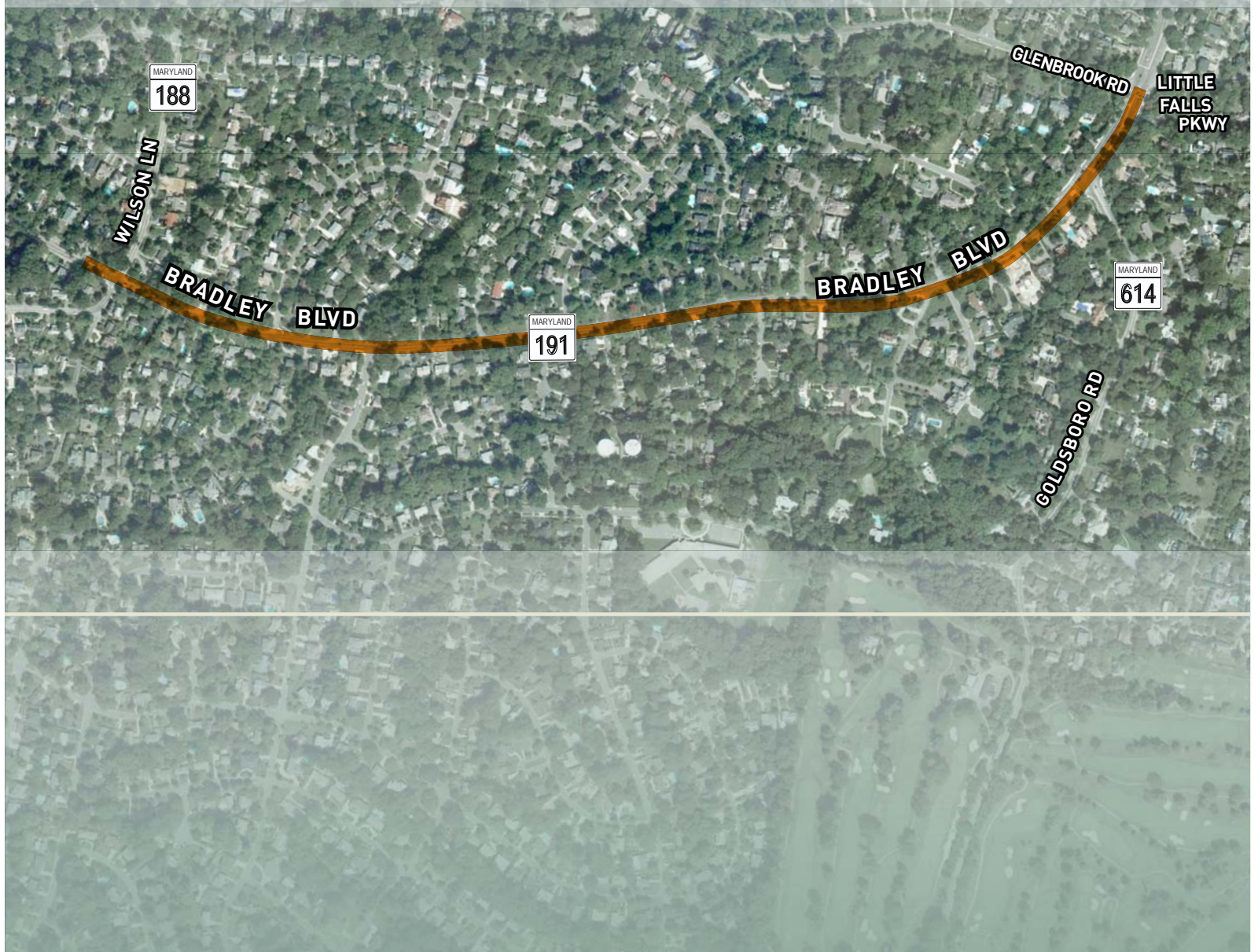
Planning

Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

APPENDIX A

Master Plan Excerpts



4.0

Transportation Plan

**The Plan assumes that increasing transit use
and limiting the construction of
new highways are ways to
maintain the quality
of life.**



The Transportation Plan assumes that increasing use of transit services and somewhat limiting the construction of new highways are necessary to maintain the quality of life in the Planning Area. In recent years, daily highway volumes have increased from 2 to 5 percent a year in Bethesda-Chevy Chase. While increases in daily volumes may well continue, growth in peak hour volumes are expected to remain more moderate. Growth in daily volumes is due to both regional growth in through traffic and local traffic growth associated with the moderate level of development endorsed by this Plan. In a developed area such as Bethesda-Chevy Chase, traffic growth cannot be easily served by highway expansion without causing serious impacts on adjacent residential properties.

Additional transportation service in B-CC should be based primarily on an expanded and vigorous program of transit and other mobility services. Use of such services is necessary because of the difficulty of expanding the capacity of many B-CC highways and due to the need to accommodate increased through traffic and the recommended level of development in B-CC. Improved transit and mobility services should include:

1. Increased level of feeder bus services, particularly in the eastern half of B-CC.
2. Provision of park-and-ride lots for about 750 vehicles. These facilities could intercept auto traffic destined to employment centers in Bethesda-Chevy Chase.
3. Provision of comprehensive rideshare programs, serving both employment and residential centers.
4. Requirement of new development to participate in traffic reduction programs.
5. Expansion of the system of pedestrian paths and bikeways to link residential areas with public facilities, commercial areas, and transit services.

The Master Plan endorses a number of changes to the classification of highways in B-CC.

The changes more closely match the classification to the function and use of each street and highway. New arterial highways include portions of Bradley Boulevard, Goldsboro Road, and MacArthur Boulevard. Other new classifications include some primary streets, principal secondary streets, and secondary streets.

The recommendation of this Plan is that a moderate level of highway improvements be implemented during the life of the Plan. Such a program may allow for continued highway congestion in some locations, but such congestion may also lead to higher use of transit and other mobility services. The combined transit/highway program has benefits such as: better use of transit facilities, service of a moderate level of development, and prevention of loss of property due to major highway construction. A moderate highway system includes:

1. completion of currently programmed projects (see Section 4.22, "Planned Highway Projects");
2. endorsement of safety and sight distance improvements;
3. provision of intersection capacity improvements at locations which currently operate at mid-point of Level of Service E, or are likely to over the next ten years. (See Figure 11.) Improvements may include added turn lanes, lane widenings, and signal changes;
4. possible endorsement of improvements to intersections to facilitate smoother traffic flow; even if they do not always achieve a fully acceptable local Level of Service, such improvements will improve both peak and off peak operating conditions;
5. possibly requiring new development to participate in construction of improvements identified in the Plan; and
6. endorsement of reductions in through traffic on secondary residential streets and, where possible, on primary streets and major highways.

Table 10 presents an overview which identifies Master Plan strategies for improved transportation in B-CC. These strategies are among those summarized above and discussed in more detail below in the narrative of the Plan. This overview

only employees of the area but residents as well. The full-service program could be an expansion of the existing Bethesda program operated by the Montgomery County Department of Transportation (MCDOT). It could also be a supplementary program funded and operated by the private sector as part of development approval agreements.

It is recommended that all existing and new nonresidential building owners and employers in the Bethesda-Chevy Chase Planning Area be urged to participate in the Share-A-Ride matching service, County transit pass subsidy, and County vanpool fare subsidy programs on an ongoing basis. For those building owners and employers that provide free or below-market rate parking for employees, there should also be a requirement that they provide reserved carpool spaces convenient to the building entrances and a subsidy, equivalent to the amortized cost of building and maintaining a parking space, to each employee who chooses an alternative mode of transportation. The subsidies could be in the form of heavily discounted rail and bus transit passes for transit passengers, bike lockers and showers for bicyclists, heavily discounted vanpool fares for vanpoolers, and special monetary benefits for carpoolers. The subsidies could be issued through the building manager's office. Furthermore, developers of new office buildings in the area could be required to provide only as many parking spaces as are specified by the minimum requirements of the Zoning Ordinance, particularly in the more congested portions of the area. New local legislation would be necessary to implement such requirements.

The Master Plan recommends a policy of seeking agreements from Federal employment centers in the area to provide ridesharing/transit incentives for its employees. (See Section 3.6, Federal Employment Centers.)

4.13 Bicycle and Pedestrian Paths

This Plan endorses the expansion of pedestrian paths and bikeways to form a network linking residential neighborhoods with public facilities.

Such an expansion is an important step to reduce auto use and to provide transportation alternatives. Connections are needed with commercial and employment centers, bus and Metro stops, and community facilities such as schools, libraries, religious institutions, and recreation areas. Such linkages

This Plan endorses the expansion of pedestrian paths and bikeways to form a network linking residential neighborhoods with public facilities.

are particularly important for older residents. Wherever feasible, bus stops and other pickup locations should include covered areas. Sidewalks linking neighborhoods with facilities within a minimum one-half-mile radius should be provided in the following priority:

1. Schools and Metro stops
2. Commercial and employment centers
3. Other community facilities and services

Sidewalks should also be provided along roadways in the following priority:

1. Major highways
2. Arterials
3. Primary streets

The network of bridle and recreational foot paths should also be continued in stream valley parks and along other available linear corridors.

Public funds for sidewalk construction have been severely limited. Current budget levels allow about one-tenth of the requested sidewalk projects to be built each year, primarily those near schools and Metro stops. The Office of Planning and Project Development of the Montgomery County DOT keeps a list of projects proposed by agencies and communities. According to MCDOT, the B-CC area has a large need for sidewalks compared to other areas of the County. This Plan endorses the pro-

vision of increased financial resources to allow for expansion of pedestrian paths and bikeways.

The Plan recommends that a vigorous program be pursued to implement the Master Plan of Bikeways within the Planning Area. The proposed Countywide network of bikeways is designed to meet recreational and transportation needs. Portions of the network within the park system have been constructed and bicycle access to NIH improved, but much of the network remains to be developed. A consultant to the County DOT recently reviewed and has made recommendations to MCDOT to facilitate further implementation of the *Master Plan of Bikeways*.

The existing street system should serve as the skeleton of a bicycle network for non-recreational bike travel. Improved roadway accessibility can be achieved through simple maintenance steps and selected improvements for critical routes between Metro stations and employment centers. Where necessary, certain sidewalks can be designated as bicycle paths, if appropriate width can be provided. Use of other linear corridors and dedicated but unbuilt street rights-of-way should also be considered for bikeways.

The recreational hiker-biker trails in the linear park system should be completed. The highest priority should be trails linking neighborhoods and parks, and completion of links between existing trails. In heavily used areas, broader paths, wider curb lanes, or paved shoulders on the roadway should be used to separate high speed cyclists from pedestrians.

The Plan recommends that pedestrian safety improvements be supported and expanded along major highways and arterials. Increased traffic volumes in peak periods and increased speeds in off-peak periods cause problems for pedestrians, especially children and the elderly. Safe access to bus stops, slower traffic speeds, and a pleasant pedestrian experience are as important as smooth traffic flow. Techniques for implementation should include provision of crosswalks and pedestrian activated signals at critical crossing points. Speed

limit enforcement is also essential. Such crossings are intended to interrupt long lines of traffic, so as to provide safe pedestrian crossing during peak periods. Selected locations for safe crossing measures are identified in the Land Use section. Other locations may also be appropriate. Implementation of safe crossings involve operational issues which must be resolved with County and State transportation agencies.

4.14 Georgetown Branch

Silver Spring to Bethesda CBDs

The Georgetown Branch right-of-way is designated for light rail and trail use between Silver Spring and Bethesda by the Georgetown Branch Master Plan Amendment, 1990. The designation of transit use on the Georgetown Branch has not changed the land use and zoning recommendations of this Plan. Following the CSX Transportation, Inc., (CSX) decision to file for an abandonment of the Georgetown Branch railroad spur with the Interstate Commerce Commission, the Planning staff prepared a Master Plan Amendment to protect the right-of-way for the public interest. The *Georgetown Branch Master Plan Amendment* (November 1986) designates the right-of-way "a public right-of-way intended to be used for public purposes such as conservation, recreation, transportation, and utilities." It states that a "transit facility could be an important element of the County's long-term transportation system."

After CSX officially abandoned the right-of-way through the Interstate Commerce Commission, the Montgomery County Government purchased the Georgetown Branch pursuant to Section 8(d) of the National Trails System Act for \$10.5 million in December 1988. The November 1986 Amendment also noted that "any use of the right-of-way for a transitway between Silver Spring and Bethesda will require a future master plan amendment." The 1986 *Master Plan Amendment* refers to transit use without specifying what type of technology it would be.

The *Georgetown Branch Master Plan Amendment* (1990) des-

Table 13 (Cont'd.)

SUMMARY OF THE BETHESDA-CHEVY CHASE MASTER PLAN HIGHWAY NEEDS

Name (Route #)	Limits	Recommendation	Current LOS	Conditions, Guidelines, Other Recommendations	Possible Long-term Changes
Other Long-term Highway Needs (Cont'd.)					
Little Falls Pkwy (Park Rd)	Fairfax Ave to Massachusetts Ave	Retain existing roadway width		Future changes, if any, must maintain parkway character	May need future widening
Wilson La (MD 188) (Arterial St)	a) MacArthur Blvd to River Rd	Two-lane arterial		a) & b): Endorse improvements related to pedestrian safety, a bike path, and speed controls	
	b) River Rd to Bradley Blvd	Recommend improvements following a proposed pedestrian safety and circulation study by MCDOT			
	c) Bradley Blvd to Clarendon Rd	Retain arterial classification but limit the roadway to two lanes		Any reconstruction should include special attention to: pedestrian safety, a conti- nuous path and pedestrian crossings; more than two lanes are undesirable due to exces- sive impacts on property	
Greentree Rd (Primary Street)	Burdette Rd to Fernwood Rd	Retain primary classification and improve substandard sections as necessary			
Burdette Rd (Principal Secondary)	River Rd to Bradley Blvd	Widen to two-lane secondary as needed; improve to primary standard as needed			
Bradley Blvd (MD 191) (Arterial)	I-495 (underpass) to Fairfax Rd a) I-495 to Goldsboro Rd	Reclassification to arterial road and retain two lanes		High volumes unlikely, since no interchange at I-495	Limit future improve- ments to four lanes except at intersections

Table 13 (Cont'd.)

SUMMARY OF THE BETHESDA-CHEVY CHASE MASTER PLAN HIGHWAY NEEDS

Name (Route #)	Limits	Recommendation	Current LOS	Conditions, Guidelines, Other Recommendations	Possible Long-term Changes
Other Long-term Highway Needs (Cont'd.)					
<i>Bradley Blvd (Cont'd.)</i>					
		Include a pathway in the right-of-way			
- Huntington Pkwy; Wilson La	Intersections	Increase intersection capacity			
	b) Goldsboro Rd to Fairfax Rd	Retain existing road width			
Bradley La (Primary)	c) Wisconsin Ave to Connecticut Ave (primary)	Retain two-lane roadway			Consider up to four lanes, if needed to serve the Bethesda Business District; this would require reclassification to an arterial road and a taking of private property
Persimmon Tree Rd (Arterial)		Retail arterial classifica- tion limit roadway widening to two lanes			
Goldsboro Rd (MD 614) (Arterial)	a) MacArthur Blvd to Massachusetts Ave (Arterial)	Reclassify as an arterial Retain two lanes		Retain right-of-way	
- at MacArthur Blvd	Intersection	Consider operational changes to improve safety and capacity		Recommend review by MCDOT	
	b) River Rd to Bradley Blvd (Arterial)	Two-lane arterial		Endorse pedestrian circulation safety improvements	Consider long-term need for four lanes, subject to en- vironmental constraints

During the life span of the Master Plan, emphasis should be on at-grade improvements at the intersection of Wisconsin Avenue and Cedar Lane and the implementation of transit and trip reduction policies to reduce highway traffic. **This Plan recommends that a possible grade-separated interchange at Wisconsin Avenue and Cedar Lane be retained as a possible long-range project.** If development or redevelopment occurs on abutting parcels, the plans should be reviewed for the purpose of reserving right-of-way for the future construction of the interchange.

The Critical Lane Volume at the Cedar Lane intersection can be reduced in the peak hours by the addition of a right-turn lane on the eastbound approach of West Cedar Lane to MD 355, the addition of a through lane on the westbound approach of Cedar Lane to MD 355, and the addition of a right-turn lane on the northbound approach of MD 355 to Cedar Lane.

A possible long-term change, beyond the life of this Master Plan, would be the addition of a lane in each direction on MD 355 from north of Cedar Lane to Jones Bridge Road. The additional lanes plus the improvements mentioned above would almost achieve acceptable levels of service. The additional lanes would reduce congestion in this area by better separation of the through traffic on MD 355 and the traffic generated by NIH and the Naval Center.

Transportation improvements in the Wisconsin Avenue corridor should also include alternative modes of travel. Not only should local development be tied to the provision and enhancement of non-auto modes of travel and the reduction of single-occupant vehicles on the road, but consideration should be given to reducing the traffic volumes generated by development in the whole corridor. Plans for expansion of employment in the Federal agencies should be closely coordinated with capacity of the transportation system.

Old Georgetown Road (MD 187)

The daily traffic volume on MD 187 has not reached the ca-

capacity of the road. Further traffic growth could result in greater congestion and motorists' use of Huntington Parkway and Bradley Boulevard as a "short cut" route around the Bethesda CBD. A transportation management district, if implemented in the Bethesda Business District, could be used to reduce the demand for additional roadway capacity on MD 187.

Bradley Boulevard (MD 191)

It is recommended that Bradley Boulevard be reclassified to an arterial road between the Capital Beltway and Goldsboro Road and retained as a two-lane road during the lifetime of the Plan. A pedestrian/bicycle path should be constructed within the existing right-of-way width of 100 feet, and the intersections at Huntington Parkway and Wilson Lane should be improved.

It is recommended that Bradley Boulevard be reclassified to an arterial road between the Capital Beltway and Goldsboro Road and retained as a two-lane road during the lifetime of the Plan.

While congestion is expected to increase, the amount of increase can be reduced if improvements are made at Huntington Parkway and Wilson Lane. These are the two most congested intersections on Bradley Boulevard outside the Bethesda CBD. Delays at these intersections could be reduced by widening the approaches to two lanes so that a lane on each approach could be used for left-turn movements.

River Road (MD 190)

The daily traffic on River Road is close to exceeding the road's capacity. The initial morning peak hour traffic forecast indicates that an annual growth rate of about 0.5 to 1 percent

can be expected in the eastbound traffic if moderate levels of development are assumed. The resultant traffic growth will adversely affect operating conditions of intersections and dictate the need for improvements. Already, there are several intersections operating at unacceptable levels of service during the peak hours and several sections of roadway operating at Level of Service E.

The intersection at Wilson Lane is operating at Level of Service F in the morning peak hour with a Critical Lane Volume of 1,820. This is considerably above the maximum of 1,525 at which local development can be approved without mitigation measures. A review of potential improvements found that only the addition of another approach lane in each direction on River Road would reduce the Critical Lane Volume to less than 1,525. Minor improvements would not result in any significant change in levels of service.

The intersection at Whittier Boulevard is operating at Level of Service F during the morning peak hour with a Critical Lane Volume of 1,558. The Critical Lane Volume could be reduced to an acceptable 1,450 by allowing traffic entering the intersection from Whittier Boulevard to turn left in both approach lanes. The traffic signal system would have to be modified to allow the movement.

The intersection at Little Falls Parkway is operating at Level of Service E in the morning peak hour with a Critical Lane Volume of 1,526. The construction of a separate right-turn lane on the northbound approach of the Parkway to River Road would reduce the Critical Lane Volume to 1,516, which is below the maximum desirable volume of 1,525. The project, however, would not significantly reduce overall congestion at the intersection.

In conclusion, some intersections along River Road are experiencing congestion on the inbound lanes during the morning peak hour. It appears that minor improvements would only provide slight relief. Increased traffic demand under any growth assumption could increase congestion at other intersections and result in a possible need to add through lanes on River Road. In conjunction with the recommended moderate

development levels, this Plan proposes construction of a commuter parking lot along River Road, in the Potomac Planning Area. Widening of River Road to six lanes may be necessary beyond the life span of this Master Plan.

Goldsboro Road (MD 614)

This Plan reclassifies Goldsboro Road from a major highway to an arterial road between MacArthur Boulevard and Massachusetts Avenue. Four lanes may be needed beyond the life span of the Master Plan. The existing pavement width is expected to be sufficient for the life span of the Master Plan and also reflects recommendations for MacArthur Boulevard.

Massachusetts Avenue (MD 396)

The capacity of Massachusetts Avenue is not expected to be exceeded between Goldsboro Road and Sangamore Road during the lifetime of the Plan. However, with the concept of de-emphasizing the potential of MacArthur Boulevard and the southern part of Goldsboro Road as major routes for through traffic, an increase in through traffic may occur on Massachusetts Avenue in the future as spillover traffic from River Road.

This Plan retains the two-lane section of Massachusetts Avenue during its lifetime, but recognizes that four lanes may be needed beyond the life span of the Master Plan.

Other Long-Term Highway Needs

Little Falls Parkway

The daily traffic volume on Little Falls Parkway does not currently exceed the road's capacity. However, if daily traffic continues to grow at the rate of 3.5 to 6 percent, the capacity could be reached by 1995.

The intersection of Little Falls Parkway and Massachusetts Avenue is operating at an acceptable Level of Service during the peak hours, but the intersection at River Road and Little Falls Parkway is operating at Level of Service E in both the

morning and evening peak hours. This means that additional traffic generated by local development could result in the need to widen Little Falls Parkway and increase intersection capacity. Such a change should only be considered in a subsequent Master Plan revision.

Wilson Lane (MD 188)

The Master Plan recommends the reconstruction of Wilson Lane as a two-lane roadway from River Road to Old Georgetown Road. Particular attention is needed to safety and public transit improvements. The improvement of Wilson Lane should include consideration of the following: (1) a continuous bicycle path from MacArthur Boulevard to downtown Bethesda; (2) the construction of waiting areas and facilities for transit passengers; (3) marked or signalized pedestrian crossing lanes at strategic locations, such as Bradley Boulevard and Old Chester Road, where there are bus stops; and (4) the erection of guard rails and anti-skid surfaces at locations, like Malden Lane and Aberdeen Road, where there are sharp curves.

Burdette Road

This Plan recommends the reclassification of Burdette Road as a principal secondary street with the expectation that no widening will be necessary unless the purpose is to facilitate safe, local access and circulation. Burdette Road is a narrow, two-lane road with steep, vertical curves between River Road and Bradley Boulevard. In 1986, the average daily traffic volume was 3,450 vehicles between River Road and Burning Tree Road and 1,900 vehicles between the latter and Bradley Boulevard. The capacity of this road, even though it is low because of its width and topographic constraints, is not expected to be exceeded during the life span of the Master Plan.

Seven Locks Road

Seven Locks Road, north of I-495, is classified as a principal secondary street in the Potomac Subregion Master Plan. **This**

Plan recommends that the section of Seven Locks Road south of I-495 also be classified as a principal secondary street for consistency.

MacArthur Boulevard

This Plan reclassifies MacArthur Boulevard as an arterial road between the Capital Beltway and Sangamore Road to match its function. In addition, the road is being proposed as a scenic highway. To maintain the scenic function during the lifetime of the Master Plan, the one-lane bridge at Cabin John should be retained. The bridge has historical significance and it serves as a traffic-metering device for controlling the volume of traffic flowing through the area. To further discourage the growth of traffic in the area, the road should retain the travel lanes it now has. Two lanes should be sufficient for providing a moderate level of land service and a medium level of traffic service, and this Plan recommends against widening MacArthur Boulevard. While some day, major improvements may be needed to protect the aqueduct, the reference to the relocation of MacArthur Boulevard to a roadbed parallel to the aqueduct from Sangamore Road to the Capital Beltway is deleted from this Plan.

This Master Plan recognizes that traffic uses the Clara Barton Parkway and MacArthur Boulevard to access Wilson Lane and Goldsboro Road. This results in large volumes of peak period traffic going through the Cabin John and Glen Echo communities. This may result in local operational problems which should be reviewed by the Montgomery County Department of Transportation.

4.24 Street and Highway Plan

Classification Categories

The Street and Highway Plan shows the classification of streets and highways in a Planning Area. (See Figure 13.) In Montgomery County, each roadway generally is classified in one of five major categories: (1) Freeways, (2) Major Highways,

Table 14 (Cont'd.)
STREET AND HIGHWAY CLASSIFICATION

Master Plan Designation	Name	Limits	Minimum Right-Of-Way Width	Ultimate Pavement Width Or Number Of Lanes (for consideration beyond Master Plan)
M-20	East-West Hwy (MD 410)	Bethesda CBD Boundary Line to Planning Area Boundary Line	120'	4 lanes
M-93	Goldsboro Rd (MD 614)	Massachusetts Ave to River Rd	120'	4 lanes
Arterials				
A-39	Bradley Blvd	Planning Area Boundary Line to Goldsboro Rd	100'	2 to 4 lanes
A-63	Sangamore Rd	Massachusetts Ave to MacArthur Blvd	80'	48'
A-65	Jones Bridge Rd	Connecticut Ave to Wisconsin Ave	80'	48'
A-67	Cedar La/ W. Cedar La	Planning Area Boundary Line to Old Georgetown Rd	80'	48'
A-77	Persimmon Tree Rd (MD 191)	Planning Area Boundary Line to MacArthur Blvd	80'	48'
A-78	Willard Ave	River Rd to Friendship Blvd	80'	48'
A-83	Wilson La (MD 188)	MacArthur Blvd to Bethesda CBD Boundary Line	Varies	2 lanes*
A-84	Goldsboro Rd	River Rd to Bradley Blvd	80'	48'
		MacArthur Blvd to Massachusetts Ave	80'	2 lanes*

CHAPTER 2

Countywide Bikeway Network Concept Plan

Background

This plan focuses on identifying the “countywide bikeways network”, which includes bikeways of countywide significance. **Countywide bikeways form the basic structure or framework of the County’s bikeway network.** These bikeways are expected to carry a substantial share of long distance bicycle traffic in the county, for recreation and transportation, as well as most of the bicycle traffic to transit centers, activity centers, municipalities and central business districts.

This plan attempts to achieve a balance of on-road and off-road bicycling accommodations, providing bikeway facilities separated from motorized traffic (e.g., shared use paths and bike lanes) as well as shared use roadways (Class III bikeways) that often provide critical local connections or long distance recreational bicycling in the County’s rural areas. Where both on-road and off-road accommodation may be desirable, the plan also recommends certain roadways for dual bikeways, which are road corridors with two types of bikeways, either shared use path and bike lanes, or shared use path and shared roadway.

The countywide bikeway network is largely composed of bikeways identified and approved in previous community master plans, sector plans, and functional plans such as the 1998 Countywide Park Trails Plan. Several new bikeways are proposed by this plan, mostly to fill in gaps and improve regional, countywide connectivity, as well as to enhance access to transit stations and community facilities. The plan occasionally makes a recommendation for a different type of bikeway for a particular segment of road than currently proposed in existing plans.

Table 2-2 at the end of this chapter describes all countywide bikeways in more detail. The recommended countywide bikeway network is depicted on the large map that accompanies this plan.

Bikeway Types and Desirable Applications

There are generally three types of bikeways recognized by this plan for including in the countywide bikeway network:

- 1) Existing or proposed shared use paths
- 2) Existing or proposed bike lanes; and
- 3) Key signed shared roadways that provide direct or indirect connections to transit centers, activity centers, employment centers and central business districts. Signed shared roadways are often simply called bike routes.

Certain types of bikeways are generally more appropriate for certain types of roads. Shared use paths are more appropriate where there are fewer driveways and intersecting roads. Bike lanes are more appropriate in more urban areas where a defined space for bicyclists is desired. Shared roadways are appropriate where motor vehicle speeds and volumes are lower, where inadequate right-of-way make bike lanes or a shared use path infeasible, or in more rural areas or areas where adequate right of way exists for bikeable shoulders. In many cases, more than one type of facility may be appropriate or desirable, what this plan calls “dual bikeways.”

Table 2-1 on the following pages includes general characteristics, benefits, desirable applications and issues associated with the three main types of bikeways. The information about desirable applications is partly derived from research conducted by Michael King on bicycle facility selection guidelines. These guidelines are not intended to be unbreakable rules, but rather guiding principles that help determine which type(s) of bikeways are more appropriate for certain types of roads and traffic conditions.

Table 2-1
Types of Bikeways and Applications

Bikeway Type	General Characteristics	Benefits	Desirable Applications	Discussion
Shared Use Path (formerly called Class I Bikeway)	<ul style="list-style-type: none"> Two-way bikeway located within right-of-way of a road or transitway Separated from travel lanes by a landscape panel If along road, located on one side of a road and intended for two-way bicycle travel 8-12 feet wide 8-10 feet vertical clearance Built to AASHTO standards Signs meet MUTCD guidelines Asphalt or Concrete Implemented by transportation agency, or under supervision of transportation agency Maintained by transportation agency Motor vehicles are prohibited May be part of a dual bikeway (road also is proposed for bike lanes or shared roadway) Signed as a bike route, unless part of a dual bikeway in which case the on-road bikeway is signed and marked as the official bike route 	<ul style="list-style-type: none"> Offers dedicated facility completely separate from motor vehicle traffic, fewer potential conflicts with motor vehicles Preferred type of facility for beginner or intermediate skill levels, especially child bicyclists Meets the needs of 90-95% of bicyclists Intended/designed for bicycle travel, but accommodates other users (pedestrians, joggers, roller-bladers) 	<ul style="list-style-type: none"> Along roads with high speeds (40 mph and higher) and high traffic volumes (15,000 ADT and higher) where complete separation from motor vehicle lanes is desired Along roads with few driveways and intersections, especially commercial driveways unless it connects to a local designation (retail center, school, library, community center, neighborhood park) Along roads that provide a connection to other shared use paths or to hard surface park trails In suburban or semi-rural crossroad communities (Olney, Potomac) 	<ul style="list-style-type: none"> Proper design (good signage and lighting) at intersections and driveway crossings is very important to minimize risk of conflict with motor vehicles Shared use paths should not be confused with sidewalks which are more narrow and are designed and intended for pedestrians. Shared use path must be maintained and cleared of debris and overhanging branches to effectively encourage people to use them For dual bikeways, the on-road bikeway should be recognized as the primary bicycle facility (e.g., signs and marking). The shared use path is considered supplementary.

Table 2-1
Types of Bikeways and Applications

Bikeway Type	General Characteristics	Benefits	Desirable Applications	Discussion
Bike Lanes (formerly called Class II bikeway)	<ul style="list-style-type: none"> One-way facility in roadway, adjacent to motor vehicle travel lanes Bicyclists travel in same direction as motor vehicles Bike lane located on each side of the road (should not be located on just one side) 4-6 feet wide, delineated by striping and marking 4-foot minimum on open section roads, 5-foot minimum on closed section roads, 6-foot or greater may be desirable on high-speed roads (40 mph or higher) If on-street parking is permitted, bike lane is located between parking lane and outermost motor vehicle travel lane Identified by bike lane symbol and signage Designed and constructed to AASHTO and MUTCD standards Signed as a bike route 	<ul style="list-style-type: none"> Provides separated space for bicyclists in the roadway Designed and intended as a travel lane for bicycles only 	<ul style="list-style-type: none"> Urban streets where on-road bicycling is encouraged to minimize need for bicyclist to ride on sidewalks and separation from motor vehicles is desirable. Because urban streets often feature on-street parking, bike lanes are more desirable than shared travel lane; traffic volumes are high, but speeds are low On closed section highways, arterials and primaries with posted speeds under 40 mph; roads that feature wide outside lanes or extra pavement width that easily could be restriped to provide dedicated bike lanes Open section highways, arterials and primaries with posted speeds under 50 mph and that feature shoulders wider than 5 feet and upon which parking along the shoulder is not desired or legal. 	<ul style="list-style-type: none"> Two-way bike lanes on one-side of a road is not recommended by AASHTO and is illegal in Maryland; wrong-way riding is leading cause of bicycle accidents Bike lanes must be maintained as part of the roadway; should not collect debris, etc.

Table 2-1
Types of Bikeways and Applications

Bikeway Type	General Characteristics	Benefits	Desirable Applications	Discussion
Signed Shared Roadway (formerly called Class III bikeway)	Four categories			
1) Wide outside (curb) lane	<ul style="list-style-type: none"> Along closed section roads, outermost travel lane is at least 14 feet wide, but less than 16 feet wide Unlike bike lanes or bikeable shoulders, does not feature dedicated, marked space for bicyclists Signed as a bike route 	<ul style="list-style-type: none"> Provides adequate space for bicycle travel in the roadway Allows bicyclist to share the travel lane with motor vehicles, but allows vehicles to pass without having to leave the travel lane or cross the centerline 	<ul style="list-style-type: none"> Along any closed section highway, arterial or primary that features adequate right of way and/or pavement width 	<ul style="list-style-type: none"> County policy requires bicycle accommodation for all new roads and as part of all roadway and intersection improvement projects. This is a minimum application that helps the County meet this policy Wide curb lanes wider than 16 feet encourage the undesirable operation of two motor vehicles in one lane Must be maintained properly to keep debris from accumulating along the curb
2) Bikeable shoulder on closed section road	<ul style="list-style-type: none"> Along closed section road, the space (2-3 feet) between the outermost lane markings and the curb. Signed as a bike route, but does not feature any special pavement markings other than stripe between motor vehicle travel lane and curb 	<ul style="list-style-type: none"> If insufficient space exists for bike lanes, this extra space simply provides added level of comfort for bicyclist. Striping the outermost travel lane gives the appearance of narrower roadway and has a traffic calming effect. 	<ul style="list-style-type: none"> Along roads with wide outside lane 15 feet or less but for which designated space for bicyclists is desired and/or traffic calming is needed. 	<ul style="list-style-type: none"> Should not be signed or marked as a bike lane. Bike lanes must be at least five feet on closed section roads. Must be smooth pavement, free of obstructions, and maintained as part of the roadway to keep debris from accumulating along the curb.

Table 2-1
Types of Bikeways and Applications

Bikeway Type	General Characteristics	Benefits	Desirable Applications	Discussion
3) Bikeable shoulder on open section road	<ul style="list-style-type: none"> 2-3 foot space between shoulder stripe and vegetation Smooth pavement (extension of road surface) and free of obstructions 	<ul style="list-style-type: none"> Allow bicyclists to travel along the road edge, which in turn allows motor vehicles to pass without having to cross the centerline. 	<ul style="list-style-type: none"> Along rural or semi-rural roads on which bicycling is popular or desired, but feature narrow travel lanes 	<ul style="list-style-type: none"> Not to be confused with standard 8 foot shoulders intended for motor vehicle emergency pullovers. Must be smooth pavement and maintained as part of the roadway.
4) Local or neighborhood street	<ul style="list-style-type: none"> Bicyclists simply share the road as is; no special accommodations needed Signed as a bike route 	<ul style="list-style-type: none"> Encourages bicyclists to travel along low volume, low speed street to reach major destinations, even if road is only open to local traffic or is one-way permanently or only for part of the day 	<ul style="list-style-type: none"> Along neighborhood or local streets providing a direct connection to a countywide or local destination. Along road serving as part of an important route to a countywide destination. Along roads making a vital link between two major bikeway corridors 	<ul style="list-style-type: none"> Because routes along local streets tend to be complex and feature numerous turns, effective, well-designed and placed directional signage is paramount.

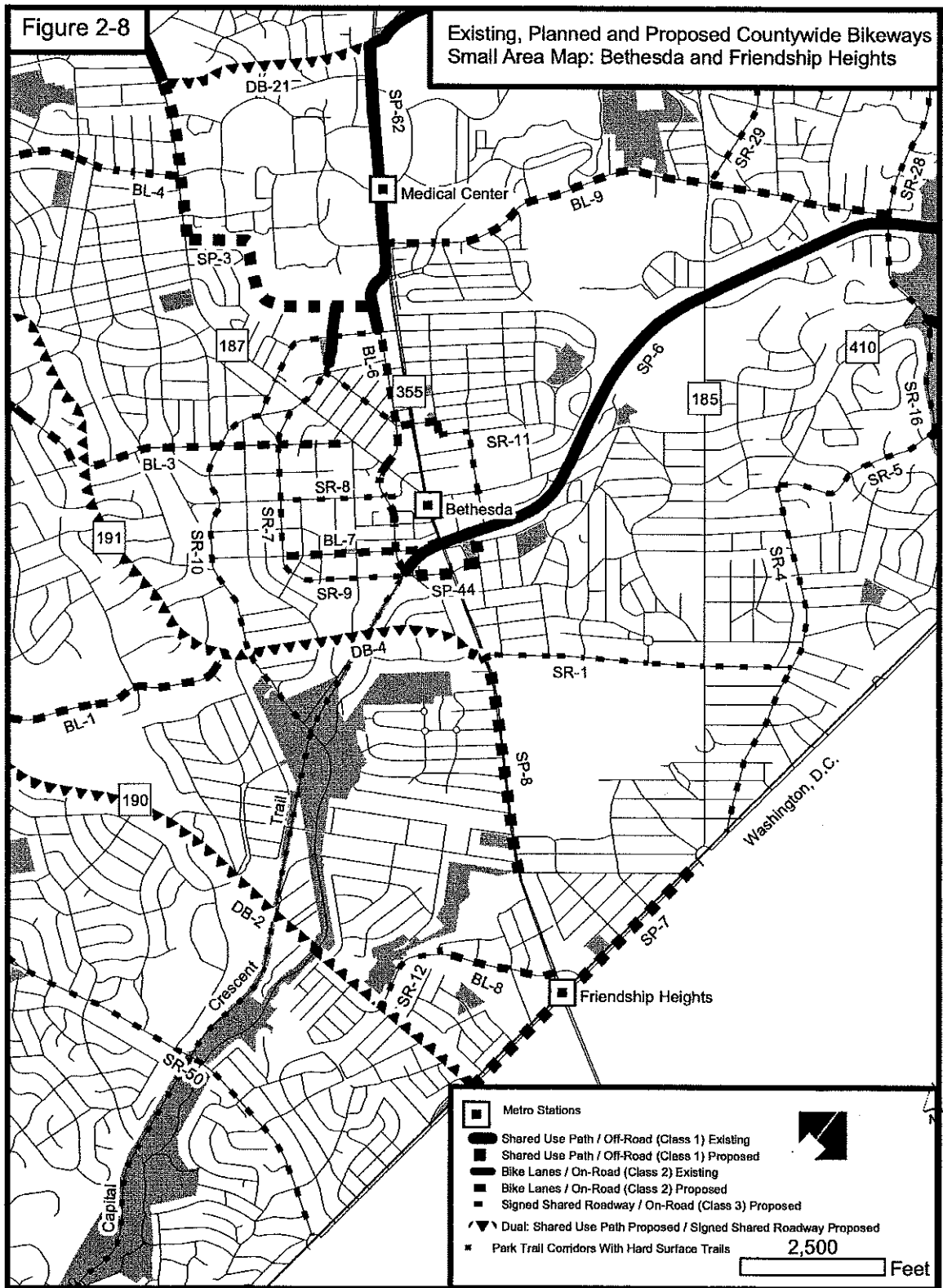


Table 2-2 Countywide Bikeways

Route #	1978 Route # reference	Bikeway Name	Bikeway Type	Limits		Plan Reference	Status/Condition	BLOC Score*	Discussion
				From	To				
DB-20	P-58	Democracy Boulevard - West	DUAL BIKEWAY; shared use path and signed shared roadway	Falls Road (MD189)	Gainsborough Road	1978 MPB; Potomac Subregion	Proposed; wide shoulder exists on both sides,		Connects to Montgomery Mall and Rock Springs Office Park; also connects to Falls Road path and Seven Locks Road path, sufficient right of way exists for dual bikeway along this road segment
DB-4	P-18	Bradley Boulevard (MD191)	DUAL BIKEWAY; shared use path and signed shared roadway	Persimmon Tree Road	Wisconsin Avenue (MD355)	1978 MPB; Potomac Subregion; Bethesda-Chevy Chase	Proposed	E	Major connection to Bethesda CBD, Bethesda Metrorail station, and Capital Crescent Trail; more than ample ROW exists; bikeable shoulders exist for most of road between Persimmon Tree Road and Goldsboro Road; Wide outside lanes proposed between Goldsboro Road and Wisconsin Avenue
SR-1		Bradley Lane	Signed shared roadway	Wisconsin Avenue (MD355)	Brookville Road (MD186)	Bethesda-Chevy Chase	Modified proposal		Part of important on-road connection from Rock Creek Trail/Beach Drive and downtown Bethesda; previous plans recommended bike lanes which are unlikely due to inadequate pavement width and ROW; road should be widened slightly to allow for wider travel lanes (preferably 14')
BL-1	P-16	Goldsboro Road (MD614)	Bike lanes	MacArthur Boulevard	Bradley Boulevard (MD191)	Bethesda-Chevy Chase	Proposed; wide shoulder exists nearly entire length	No score	Significant connection to Bradley Boulevard, Bethesda CBD and Metrorail. Could be implemented when road is repaved and/or restriped; some gaps in shoulders
SR-50		Massachusetts Avenue (MD 396)	Signed shared roadway	Goldsboro Road	District of Columbia		New proposal	No score	Important connection to District of Columbia and to the Capital Crescent Trail. The road is currently suitable for on-road bicycling; bike lanes are preferable if and when road is widened or rebuilt
BL-2	P-44	Wilson Lane (MD188) - west	Bike lanes	MacArthur Boulevard	Elmore Lane	Bethesda-Chevy Chase	Proposed	E	Part of important connection to downtown Bethesda and to the C&O Canal. Could be implemented when road is repaved and/or restriped
SR-2	P-44, E-23	Wilson Lane (MD188) - central	Signed shared roadway	Elmore Lane	Aberdeen Road	Bethesda-Chevy Chase	Proposed	E	Part of important connection to downtown Bethesda and to the C&O Canal. Requires only signage
BL-3	P-44, E-23	Wilson Lane (MD188) - east	Bike lanes	Aberdeen Road	Old Georgetown Road	Bethesda-Chevy Chase	Proposed	E	Part of important connection to downtown Bethesda and to the C&O Canal. Could be implemented when road is repaved and/or restriped
BL-4	S-59	Westlake Terrace/Fernwood Road/Green Tree Road	Bike lanes/signed shared roadway	Westlake Drive	Old Georgetown Road	Bethesda-Chevy Chase; North Bethesda-Garrett Park	Modified proposal		Provides important connection between NIH/Medical Center Metro station and Rock Spring Industrial Park. Also part of connection to Montgomery Mall; adequate shoulder space exists for most of road to accommodate on-road bikeway, actual type to be determined during facility planning; on-street parking would need to be studied

SP = Shared Use Path (Class I); BL= Bike Lanes (Class II); SR = Signed Shared Roadway (Class III); DB = Dual Bikeway
 (*BLOC = bicycle level of comfort score for state highways, see p. 29)

Table 2-2 Countywide Bikeways

Route #	1978 Route # reference	Bikeway Name	Bikeway Type	Limits		Plan Reference	Status/ Condition	BLOC Score*	Discussion
				From	To				
SP-3		North Bethesda Trail-NIH connector	Shared use path	Battery Lane	Cedar Lane	Bethesda CBD	Substandard path exists near Battery Lane; other segments proposed		Provides part of critical link between North Bethesda Trail and the Capital Crescent Trail; NIH fence project leaving space for county to build the trail; path should avoid rare forest fragment on NIH property
SP-4		Cedar Lane	Shared use path	Wisconsin Avenue (MD355)	Beach Drive	Bethesda-Chevy Chase	Substandard path exists east of MD355; path through parkland exists, segment under I-495 proposed		Provides part of critical link from Rock Creek Trail and Beach Drive to NIH/Medical Center Metrorail station as well as to North Bethesda Trail via West Cedar Lane.
DB-21		West Cedar Lane	DUAL BIKEWAY - shared use path and signed shared roadway	Old Georgetown Road	Wisconsin Avenue (MD355)	Bethesda-Chevy Chase	Proposed		Forms part of connection between North Bethesda Trail and Rock Creek Trail, as well as between North Bethesda Trail and NIH/Medical Center Metrorail station; NIH fence project leaving space for county to build
SP-62		Wisconsin Avenue (MD355)/Woodmont Avenue	Shared use path	Battery Lane	Cedar Lane	Bethesda-Chevy Chase	Existing	No score	Forms part of connection to the NIH/Medical Center campuses and Metrorail station as well as to downtown Bethesda
SP-5		Oaklyn Drive/Persimmon Tree Road	Shared use path	MacArthur Boulevard	Falls Road (MD169)	Potomac Subregion	Oaklyn Drive is existing, Persimmon Tree Road is proposed		Likely will require additional ROW, tree removal
BL-9	E-21	Jones Bridge Road	Bike lanes	Rockville Pike (MD355)	Jones Mill Road/Capital Crescent Trail		New proposal		Major connection between Capital Crescent Trail/Rock Creek Trail and NIH/Medical Center Metro Station; currently signed as a bike route between MD355 and MD185; may be implemented as part of Jones Bridge Road busway (part of Bi-County Transitway)
SR-4		Brookville Road (MD186)	Signed shared roadway	DC line	Woodbine Street		New proposal	No score	Part of important on-road connection to Rock Creek Trail from Villages of Chevy Chase and Friendship Heights; will connect to proposed bikeway along Western Avenue in D.C.; Requires only signage improvements
SP-6		Georgetown Branch Interim Trail (Future Capital Crescent Trail)	Shared use path	Bethesda CBD	Silver Spring Metrorail station	Bethesda-Chevy Chase; North and West Silver Spring	Existing between Woodmont Avenue and Stewart Avenue, but surface is temporary crushed stone		Major connection between Bethesda and Silver Spring; to be implemented as part of Bi-County Transitway
SP-44		Capital Crescent Trail (surface route)	Shared use path	Elm Street Park Avenue	Woodmont Avenue	Bethesda CBD	Proposed		Provides a street-level connection between Georgetown Branch Interim Trail and the Capital Crescent Trail

SP = Shared Use Path (Class I); BL= Bike Lanes (Class II); SR = Signed Shared Roadway (Class III); DB = Dual Bikeway

(*BLOC = bicycle level of comfort score for state highways, see p. 29)

Table 2-2 Countywide Bikeways

Route #	1978 Route # reference	Bikeway Name	Bikeway Type	Limits		Plan Reference	Status/ Condition	BLOC Score*	Discussion
				From	To				
SR-63		Interim Capital Crescent Trail	Signed shared roadway	Stewart Avenue	Second Avenue	Facility Plan for the Capital Crescent Trail (2001)			Interim on-road route to get trail users to/from downtown Silver Spring until such time the permanent trail is built as part of the Bi-County Transitway. Interim on-road route is as follows: Stewart Avenue to Michigan Avenue to Talbot Avenue to Grace Church Road to Lytonsville Road to 16th Street to Bridge Street (3rd Avenue) to Fenwick Lane.
SR-5		Woodbine Street	Signed shared roadway	Brookville Drive (MD186)	Beach Drive		New proposal		Part of important on-road connection to Rock Creek Trail from Villages of Chevy Chase and Friendship Heights; Requires only signage improvements
BL-6	S-50, S-55	Woodmont Avenue	Bike lanes	Bethesda Avenue	Battery Lane		New proposal		Provides important connections to Bethesda CBD and Metrorail, NIH, Medical Center Metrorail, and Capital Crescent Trail; also forms part of important connection between North Bethesda Trail and Capital Crescent Trail; improvements may prove difficult due to traffic issues
SR-5		Battery Lane	Signed shared roadway	Old Georgetown Road	Battery Lane Urban Park		New proposal		Part of important alternative connection from NIH campus and North Bethesda Trail to Capital Crescent Trail.
SR-7		Exeter Road/Glenbrook Road	Signed shared roadway	Bethesda Avenue	Norfolk Avenue	Bethesda CBD	Proposed		Part of important alternative connection from NIH campus and North Bethesda Trail to Capital Crescent Trail; Requires only signage improvements
SR-8		Edgemoor Lane	signed shared roadway/bike lanes	Exeter Road	Metro station	Bethesda CBD	Proposed		Provides direct connection to Bethesda Metrorail station; bike lanes from Arlington Road to Metrorail station, shared roadway between Arlington Road and Exeter Road
BL-7		Elm Street	Bike lanes	Exeter Road	Wisconsin Avenue (MD355)	Bethesda CBD	Proposed		Provides direct connection to Bethesda Metrorail station
SR-9		Bethesda Avenue	Signed shared roadway	Exeter Road	Woodmont Avenue	Bethesda CBD	Proposed		Important connection to Capital Crescent Trail and part of important connect to Bethesda Metrorail station; Requires only signage improvements
SR-10		NIH-CCT connector alternative	Signed shared roadway	Capital Crescent Trail	NIH Campus		new proposal		Part of alternative connection from NIH and North Bethesda Trail to Capital Crescent Trail to bypass Bethesda CBD; Battery Lane Urban Park to Battery Lane to Glenbrook Road to Little Falls Parkway
SR-11		NIH-Georgetown Branch Trail connector	Signed shared roadway/bike lanes	Georgetown Branch Trail	Battery Lane Urban Park	Bethesda CBD	Proposed		Part of connection between NIH campus and Georgetown Branch Trail, as well as to B-CC High School; Battery Lane Urban Park to Norfolk Avenue to Cheltenham Drive to Tilbury Street to Sleaford Road to Pearl Street; mostly signed shared roadway, but portions of route may be bike lanes per Bethesda CBD sector plan

SP = Shared Use Path (Class I); BL = Bike Lanes (Class II); SR = Signed Shared Roadway (Class III); DB = Dual Bikeway

(*BLOC = bicycle level of comfort score for state highways, see p. 29)



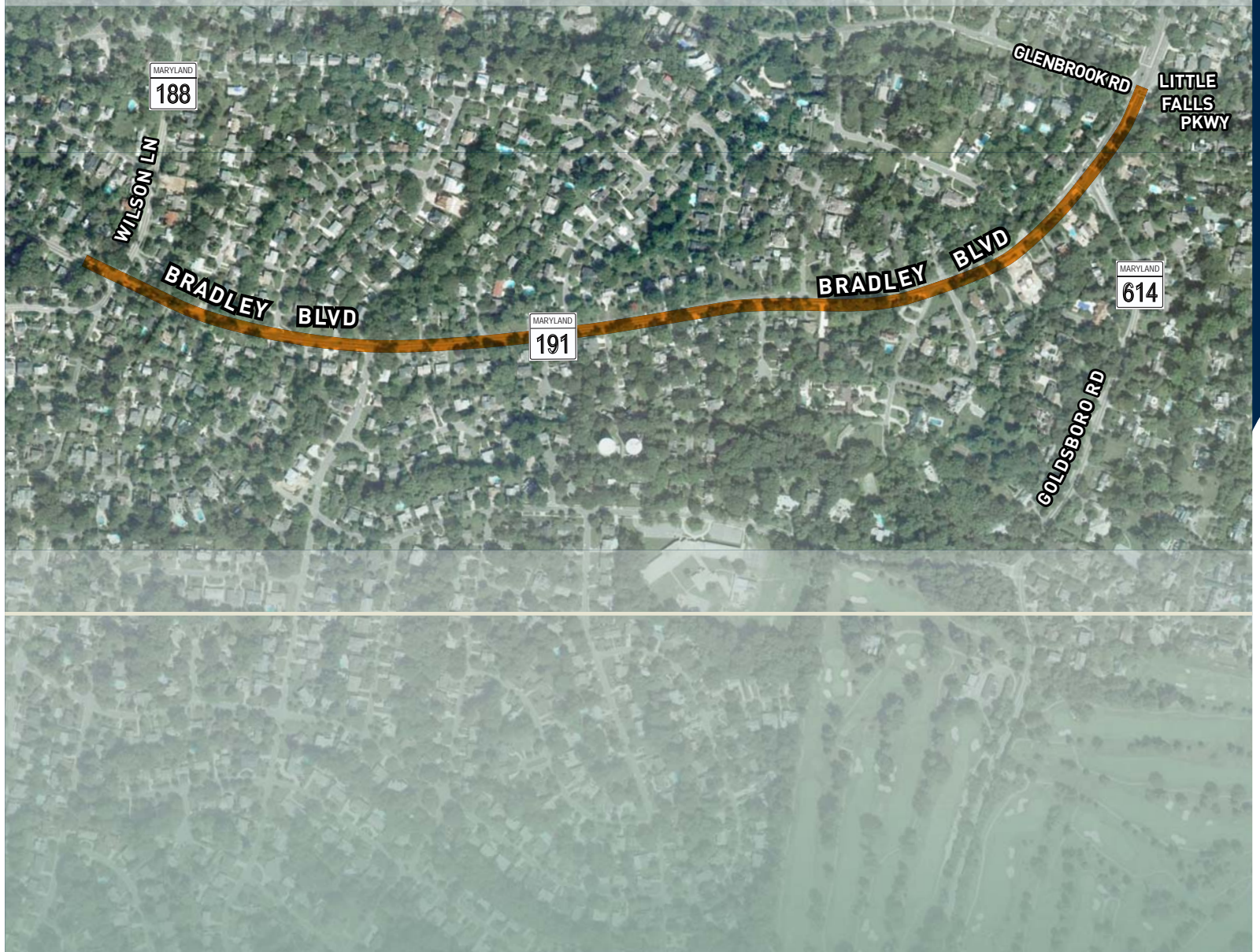
Planning

Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

APPENDIX B

Public Participation Materials



October 27, 2009
Public Participation Materials

NEWSLETTER



Montgomery County Department of Transportation (MCDOT)
DIVISION OF TRANSPORTATION ENGINEERING
 100 Edison Park Drive, 4th Floor
 Gaithersburg, Maryland 20878
 Phone: 240. 777. 7231 • Fax: 240. 777. 7277

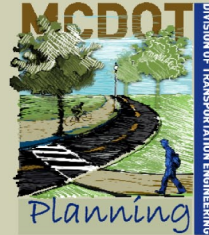
BRADLEY BOULEVARD IMPROVEMENTS PUBLIC MEETING

Tuesday, October 27, 2009 • 7:00 - 9:00 PM Bethesda-Chevy Chase RSC
 Conference Room A 4805 Edgemoor Lane • Bethesda, MD 20814



Directions to Public Meeting

From Bradley Boulevard, head east on Wilson Lane to a right turn on Old Georgetown Road. Follow Old Georgetown Road to a right turn on Woodmont Avenue. Turn into the second parking entrance on the left. Take the elevators from the parking garage to the PLAZA LEVEL (P). The Bethesda-Chevy Chase Regional Services Center is located at the center of the plaza.



ISIAH LEGGETT
 Montgomery County Executive

DIVISION OF TRANSPORTATION ENGINEERING

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Tim Cupples
 Construction

Tom M. Reise
 Property Acquisition

For alternative formats of this newsletter, contact the Division of Transportation Engineering at 240-777-7220. TTY users call MD relay.

The Plan Ahead is a project newsletter published by the MCDOT to encourage community participation.

October 2009

THE PLAN AHEAD

ARTHUR HOLMES, JR. - Director
 Department of Transportation

BRADLEY BOULEVARD PEDESTRIAN/CYCLIST SAFETY IMPROVEMENTS FACILITY PLANNING PHASE I STUDY

The safe and efficient accommodation of pedestrians and cyclists along the traveled way is equally important as the provisions for vehicles. Montgomery County Department of Transportation (MCDOT) believes sidewalks and bicycle facilities enrich the livability of a community and serve as critical links in the transportation network by providing access to neighborhoods, transit, commercial districts, schools and recreation areas.

The Bradley Boulevard Improvements Project was initiated as a result of a request from the Bradley Hills Civic Association for greater pedestrian access along Bradley Boulevard.

Functional Master Plan recommends pedestrian connections and a dual bikeway along Bradley Boulevard. The Dual Bikeway features both Class I Off-Road Shared Use Path and Class II On-Road Bike Lanes.

A Class I Off-Road Shared Use Path is physically separated from vehicular traffic by an open space or barrier and is generally eight to ten-feet wide. A Class II On-Road Bike Lane is typically a five-foot wide portion of roadway designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

As a comprehensive evaluation, Montgomery County Division of Transportation Engineering has initiated a Facility Planning, Phase I Study to evaluate the need for sidewalks, master planned bicycle facilities and safety improvements along Bradley Boulevard between Wilson Lane and Goldsboro Road.

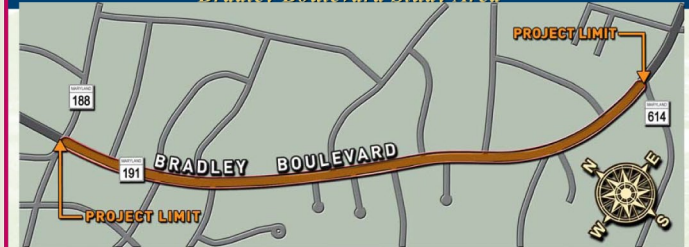
MASTER PLAN RECOMMENDATIONS

The 1990 Approved and Adopted Bethesda Chevy Chase Master Plan and the 2005 Countywide Bikeways

PUBLIC MEETING

This newsletter is to invite you to attend the Bradley Boulevard Improvements public meeting. The purpose of the public meeting is to:

Bradley Boulevard Study Area



For more information, please contact Patricia D. Shepherd - Project Manager
 Phone: 240. 777. 7231 Email: patricia.shepherd@montgomerycountymd.gov
<http://www2.montgomerycountymd.gov/DOT-DTE/Projects/ProjectHome.aspx>

1. Introduce the Study Team and establish meaningful lines of communication between the Study Team and the public;
2. To share project information with the public in an all-inclusive manner;
3. Present the concepts being evaluated that propose to improve pedestrian/cyclist/vehicular safety and;
4. Gather feedback from the public.

BRADLEY BOULEVARD IMPROVEMENTS PUBLIC MEETING

**Tuesday, October 27, 2009
7:00 PM - 9:00 PM**

Bethesda Chevy Chase Regional Services Center
Conference Room A
4805 Edgemoor Lane, Bethesda, MD 20814

FREQUENTLY ASKED QUESTIONS

Why is it important for me to attend this meeting?

MCDOT believes that public input is the key to an effective planning process because it allows the Study Team and decision makers to understand the needs of the community. The public meeting will also allow you to learn more about the project and provide an opportunity to voice your concerns.

What should I expect at the public workshop?

At the public workshop you will get an opportunity to meet the representatives from different agencies who are a part of the Study Team. Displays will be arranged where you can learn about the Facility Planning process and the alternatives being evaluated. You may ask questions of the Study Team and offer any suggestions that would meet the objectives of the project.

What if I can not attend the meeting? Is there any other way that I can be certain that you will receive my input?

We certainly understand that your schedule may not permit you to attend the public meeting. You may share your comments by completing and returning the postage-paid Public Comments Form by **November 10, 2009** or by contacting the Project Manager, Patricia Shepherd at 240. 777. 7231 or e-mail to: patricia.shepherd@montgomerycountymd.gov

What is Facility Planning?

Facility Planning for transportation improvements is an evaluation process that furnishes design plans which are approximately 35% complete. It is managed in two phases. Phase I addresses two essential questions:

- What will the improvements be?
- Why are the improvements necessary?

Phase II addresses:

- How will the improvements be performed?
- How long will the design/construction take?
- How much will the improvements cost?

The components of both Phase I and II provide enough information for elected officials to determine whether or not the project is justified to be fully funded for design and construction.

What stage is the Bradley Boulevard Improvements Project?

Bradley Boulevard Improvements is in Phase I of the Facility Planning Process, which is the beginning of the analysis. Phase I generally provides 15% design and involves:

1. Collecting background data, reviewing the Master Plan and identifying pending developments within the project limits;



Planning
Montgomery County Department of Transportation

MCDOT WANTS YOUR FEEDBACK

The MCDOT encourages you to provide your concerns on the postage-paid Public Comments Form included with this newsletter. If you have access to the internet, you may e-mail your comments directly to the project manager at: patricia.shepherd@montgomerycountymd.gov

Your input is important as it allows MCDOT, decision makers and elected officials to understand the concerns of the community. Your comments become a part of public records and may be included and/or summarized in the Bradley Boulevard Improvements Project Prospectus. Due to the high volume of comments we receive, we regret that we may be unable to respond to each inquiry. MCDOT assures you that all comments will be read and evaluated.



Bicyclists riding Westbound at Brite Drive

2. Obtaining public input;
3. Developing concept plans and selecting a Recommended Alternative.

What happens after this meeting?

Your comments and concerns will be taken into consideration as the Study Team refines and finalizes the concepts. The concept that best addresses the project's purpose and need and the concerns of the community will be selected as the Recommended Alternative. A newsletter will be mailed informing the community of the Recommended Alternative.

Who receives this newsletter?

The newsletter is mailed to Home Owner Associations representing the subject Study Area and property owners directly abutting the subject roadway whose names appear on the County's Geographical Information System (GIS) database.

If you would like to receive future newsletters on the Bradley Boulevard Improvements Project, MCDOT would be pleased to have your name added to the project's mailing list. Please contact the Project Manager, Patricia Shepherd at 240-777-7231 or by e-mail to: patricia.shepherd@montgomerycountymd.gov

The Life of a Transportation Project

FACILITY PLANNING-PHASE I

Collect data, obtain public input, develop concept plans, evaluate and select preferred alignment/cross section. Obtain Director's and Montgomery County Council's Transportation Infrastructure, Energy and Environment committee (T&E) approval.

FACILITY PLANNING-PHASE II

Develop 35% design plans, cost estimate and project schedule.

Submit to County Council for approval to include in Capital Improvement Program (CIP).

If approved for full funding and is included in the CIP, complete final design and construction.

LEGEND

CURRENTLY FUNDED

NOT FUNDED

Public input is the key to an effective planning process.
Let MCDOT hear from you!

October 27, 2009
Public Participation Materials

SLIDE PRESENTATION



ISIAH LEGGETT
Montgomery County Executive

Arthur Holmes, Jr.—Director
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Sogand Seirafi, P.E.
Planning and Design

Tim Cupples
Construction

Tom M. Reise
Property Acquisition

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE (MD 188)
TO GOLDSBORO ROAD (MD 614)



•PUBLIC MEETING

•Tuesday, October 27, 2009

•Tuesday, October 27, 2009

•7:00PM - 9:00PM

•Bethesda Chevy Chase Regional Services Center 4805 Edgemoor Lane Bethesda, MD

•Bethesda Chevy Chase Regional Services Center 4805 Edgemoor Lane Bethesda, MD



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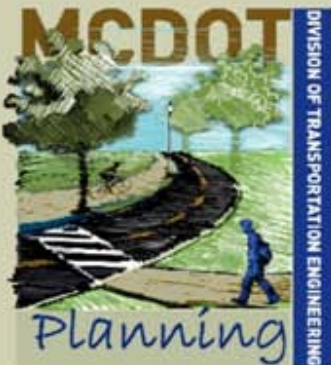
Tom M. Reise
Property Acquisition

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

PURPOSE OF PUBLIC MEETING

- Introduce project team
- Provide project overview
- Explain project schedule
- Share the background data
- Listen to community's concerns and gather feedback



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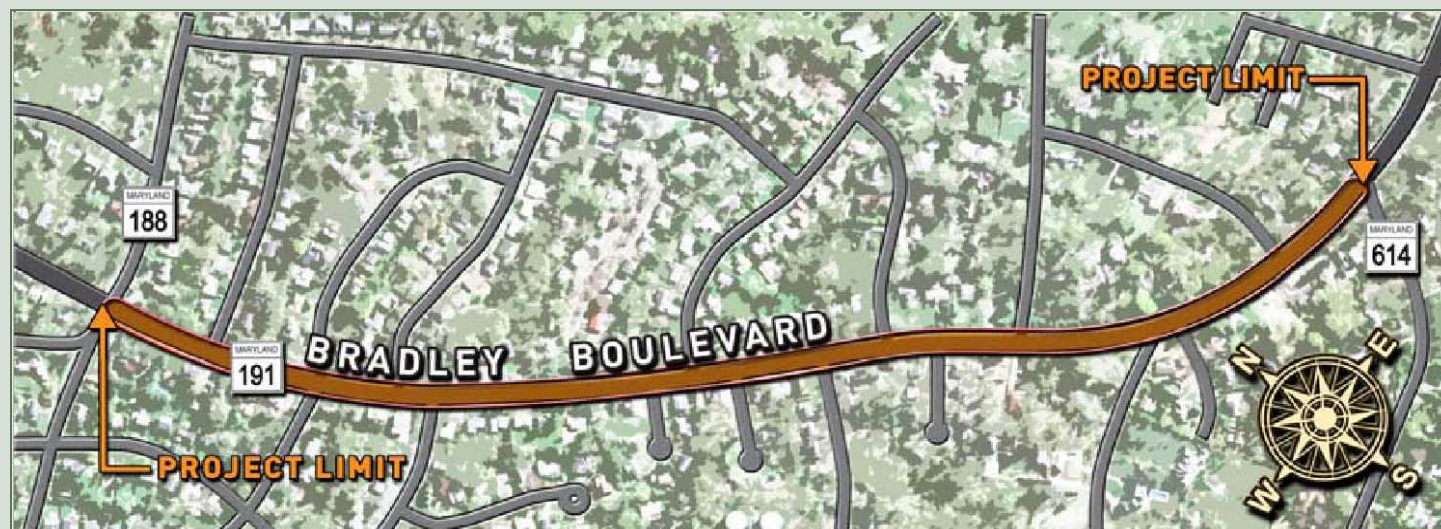
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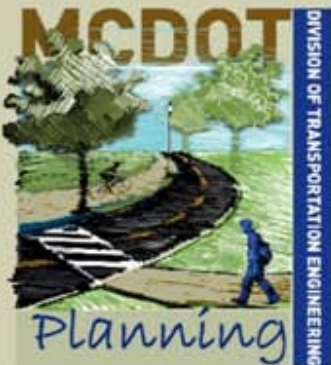
BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Project Boundary

FROM WILSON LANE (MD 188)
TO GOLDSBORO ROAD (MD 614)





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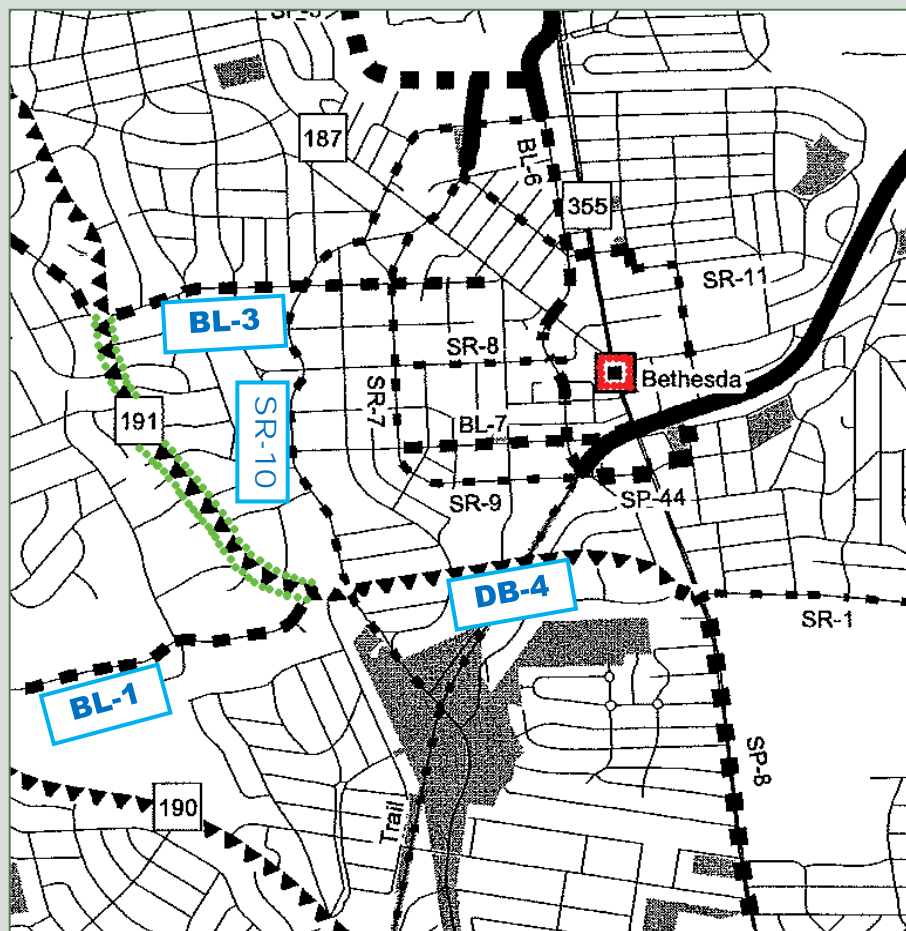
Tim Cupples
Construction

Tom M. Reise
Property Acquisition

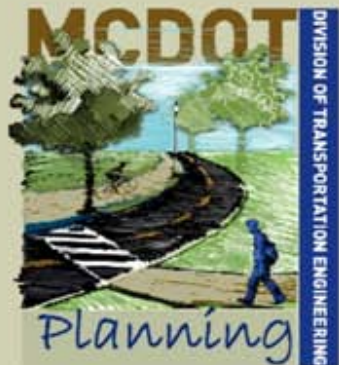
BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Master Plan Recommendations



- **DB-4: Dual Bikeway** along Bradley Boulevard from Persimmon Tree Road to Wisconsin Avenue (MD 355)
- **BL-1: Bike Lanes** along Goldsboro Road (MD 614) from MacArthur Boulevard to Bradley Boulevard
- **BL-3: Bike Lanes** along Wilson Lane (MD 188) from Aberdeen Road to Old Georgetown Road (MD 187)
- **SR-10: Signed shared roadway** along Glenbrook Road from the Capital Crescent Trail to the NIH Campus



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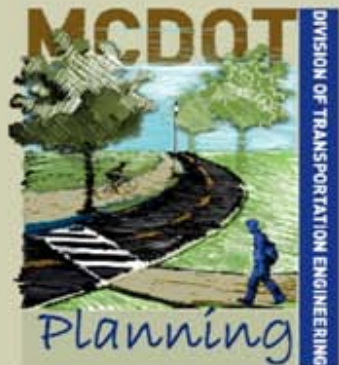
Tom M. Reise
Property Acquisition

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Bradley Boulevard Study - Purpose

- Comply with the 1990 Approved and Adopted Bethesda-Chevy Chase Master Plan and the 2005 Countywide Bikeways Functional Master Plan
- Promote and enhance two-way bicycling and continuous pedestrian facilities
- Encourage multi-modal transportation usage to work centers, places of worship, parks, trails, schools, shopping areas, transit stops, and homes
- Improve access to transit stops and the Medical Center, Bethesda, and Friendship Heights Metrorail stations
- Promote a safe environment for pedestrians and bicyclists
- Improve observed existing traffic patterns and operations



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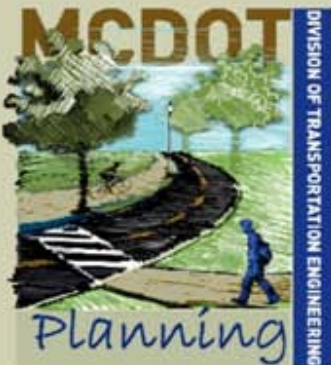
Tom M. Reise
Property Acquisition

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Bradley Boulevard Study - Need

- Improve access to major destinations along and beyond the study area as recommended in the local area master plans
- Address existing sidewalk and bicycle facility disconnects
- Provide safe facilities to address pedestrian and bicycle demand
- Improve existing traffic patterns and operations for vehicular safety



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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Project Schedule

FACILITY PLANNING – PHASE I

- Collect data, obtain public input, develop concept plans
- Evaluate Improvement Impacts
- Select Recommended Alternate
- Obtain Director's Approval
- Project Prospectus

Complete
Summer 2010

WE ARE HERE

FUNDED

NOT FUNDED

FACILITY PLANNING – PHASE II

- Develop 35% Design Plans
- Detail Project Schedule
- Detail Project Cost
- Preliminary Plan

Complete
Winter 2012

SUBMIT TO COUNTY COUNCIL

For Approval to Include in Capital
Improvement Program (CIP)

2 Years

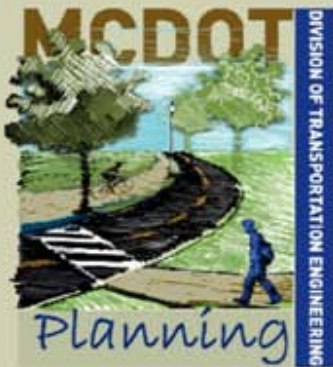
FINAL DESIGN

Design
progresses from
35% to 100%.

1 1/2 Years

CONSTRUCTION

Improvements are
constructed.



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Montgomery County Executive

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Department of Transportation

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Deputy

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Planning and Design

Tim Cupples
Construction

Tom M. Reise
Property Acquisition

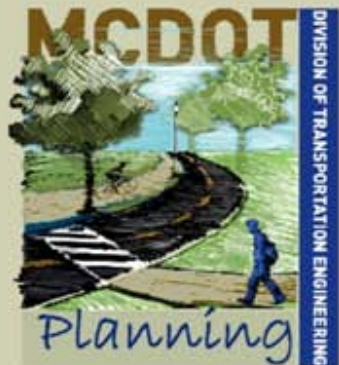
BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Completed to Date

- Environmental Assessment
- Purpose and Need
- Traffic Study
- Draft Concepts





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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Next Steps for Facility Planning Phase I Study

- Obtain community input
- Refine concepts per public input
- Select Recommended Alternative
- Brief Maryland-National Capital Park and Planning Commission (MNCPPC)
- Obtain approval from Montgomery County Council's Transportation, Infrastructure, Energy and Environment Committee (T&E) and DOT Director.



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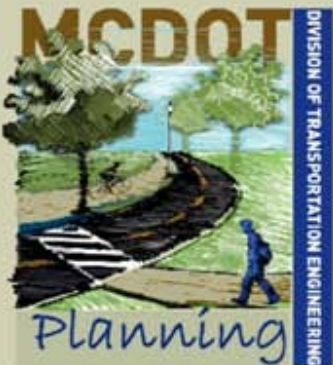
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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Existing Conditions





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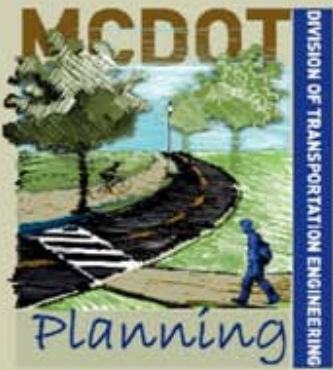
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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Proposed Alternates

- **Alternate 1 – No-Build**
- **Alternate 2 – Master Plan**
 - ▶ Maintain 12' vehicular lanes
 - ▶ Propose 4' bike lanes
 - ▶ Propose 10' shared-use path along the north side of the roadway
- **Alternate 3 – Enhanced Master Plan**
 - ▶ Maintain 12' vehicular lanes
 - ▶ Propose 6' bike lanes
 - ▶ Propose 12' shared-use path along the north side of the roadway
 - ▶ Propose 5' or 7' sidewalk along the south side of the roadway



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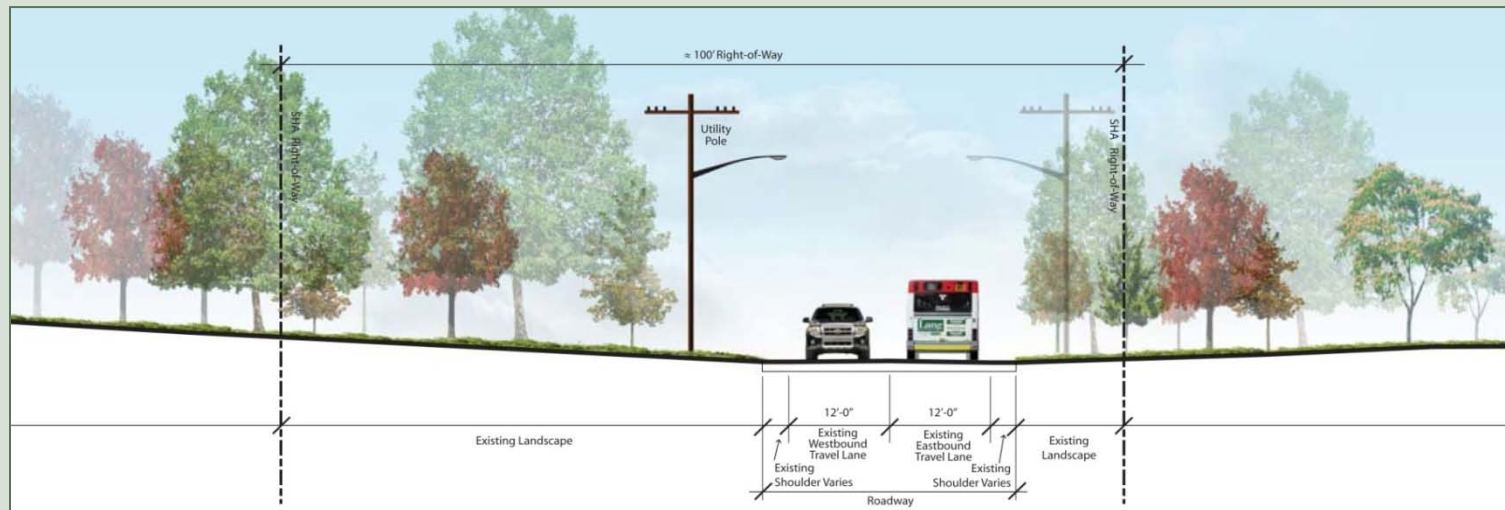
Tim Cupples
Construction

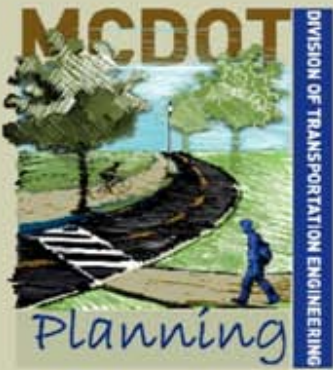
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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Alternate 1 – No Build





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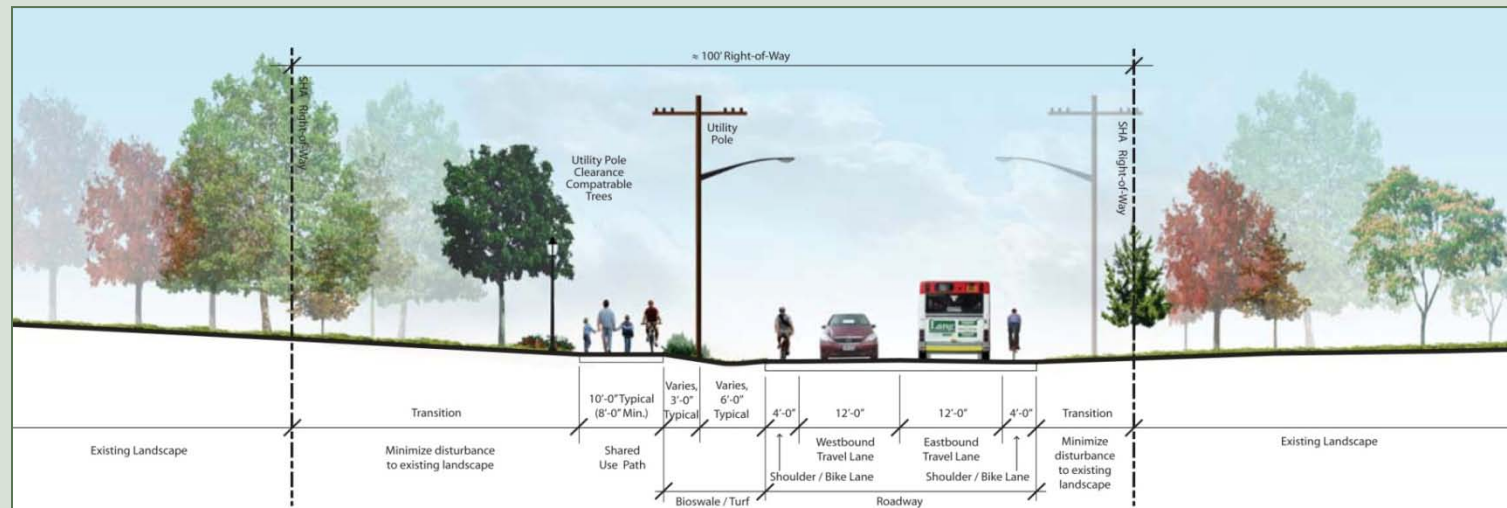
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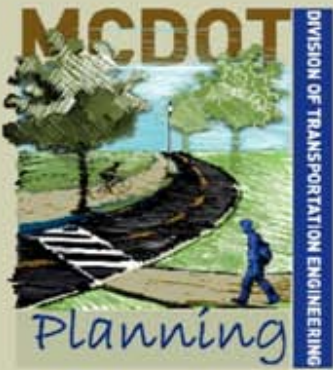
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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Alternate 2 – Master Plan





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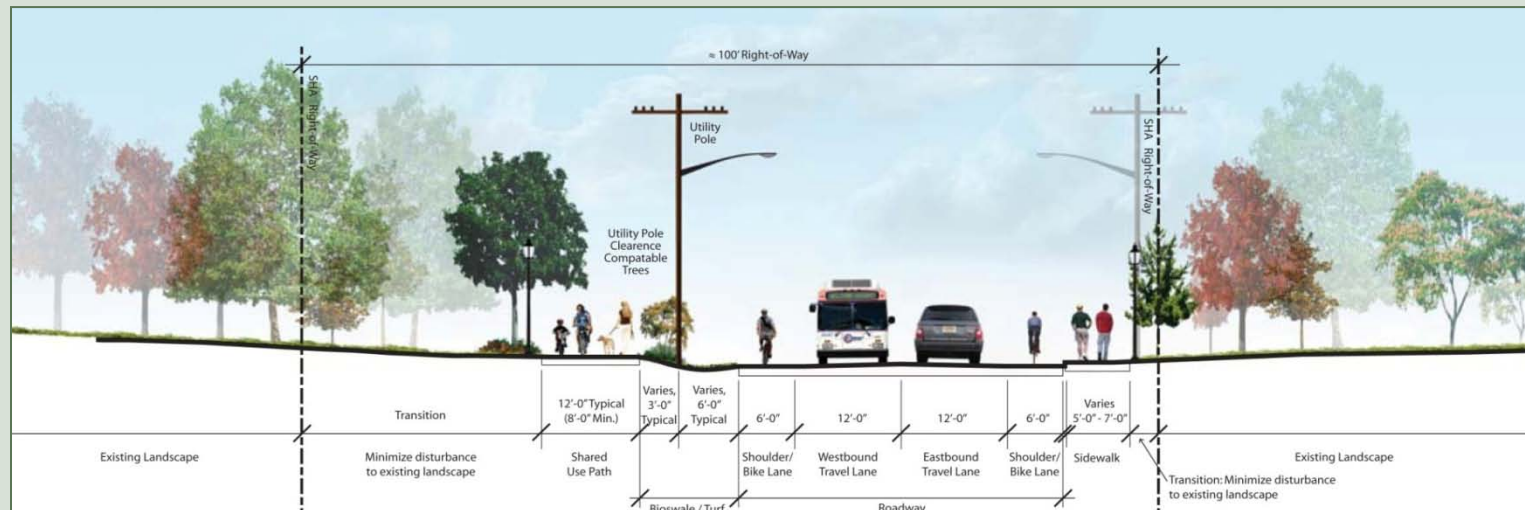
Tim Cupples
Construction

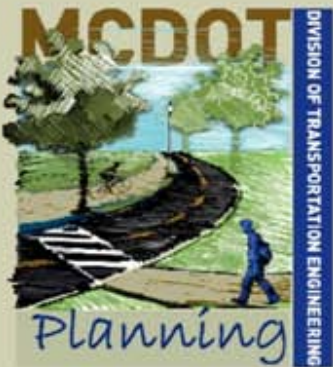
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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Alternate 3 – Enhanced Master Plan





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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Traffic Analysis

- Vehicular Traffic Level of Service (LOS)**

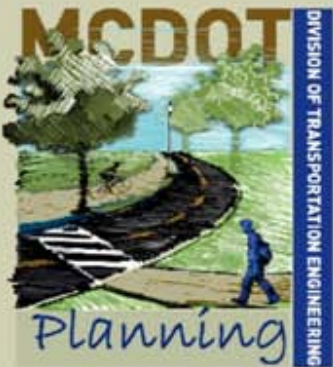
INTERSECTION	AM PEAK HOUR	PM PEAK HOUR
Bradley Boulevard at Wilson Lane	D	E
Bradley Boulevard at Goldsboro Road	B	B

- Crash Data**

- ▶ 62 crashes in the study area between 2003 and 2007

- Bicycle Traffic**

- ▶ High Volumes Observed including over 70 during the peak hour on a Saturday
- ▶ 3 of the 62 crashes involved a bicyclist



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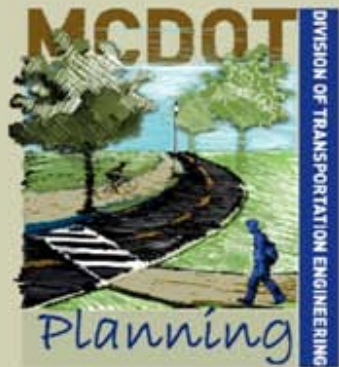
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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Intersection Improvements

- **Bradley Boulevard @ Wilson Lane**
 - ▶ Add left turn lanes along Bradley Boulevard eastbound and westbound
 - ▶ Consideration for including No Turn on Red Signs along Bradley Boulevard
- **Bradley Boulevard @ Goldsboro Road**
 - ▶ Lengthen the westbound merge area past the intersection
 - ▶ Add crosswalks to the east and south legs of the intersection
 - ▶ Consideration for converting the westbound left turn signal to an arrow only
 - ▶ Goldsboro right turn phasing
- **All improvements included with the alternates except for Alternate 1 – No-Build**



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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE TO GOLDSBORO ROAD

Contact the Project Manager

Project Manager: Patricia Shepherd

Mailing Address: Division of Transportation Engineering
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Gaithersburg, Maryland 20878

Phone: 240-777-7231

FAX: 240-777-7277

e-mail: Patricia.Shepherd@montgomerycountymd.gov

Home Page:

<http://www2.montgomerycountymd.gov/DOT-DTE/Common/home.aspx>



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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FROM WILSON LANE (MD 188) TO GOLDSBORO ROAD (MD 614)



October 27, 2009
Public Participation Materials

DISPLAY BOARDS

Typical Sections

Alternate Plans

Bike and Sidewalk Connectivity

Public Transportation

Photo Montage

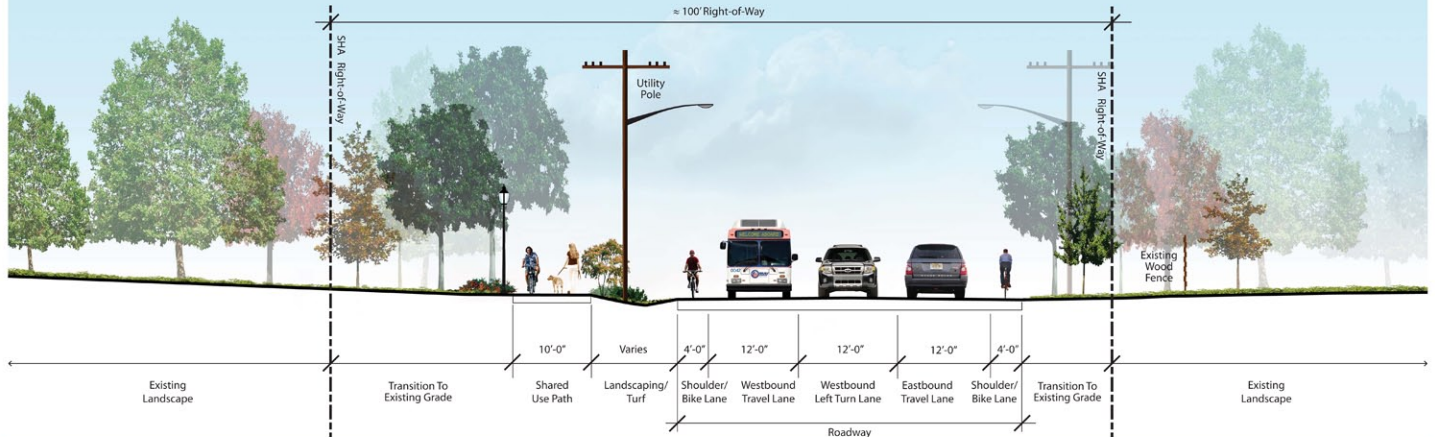
Precedent Images



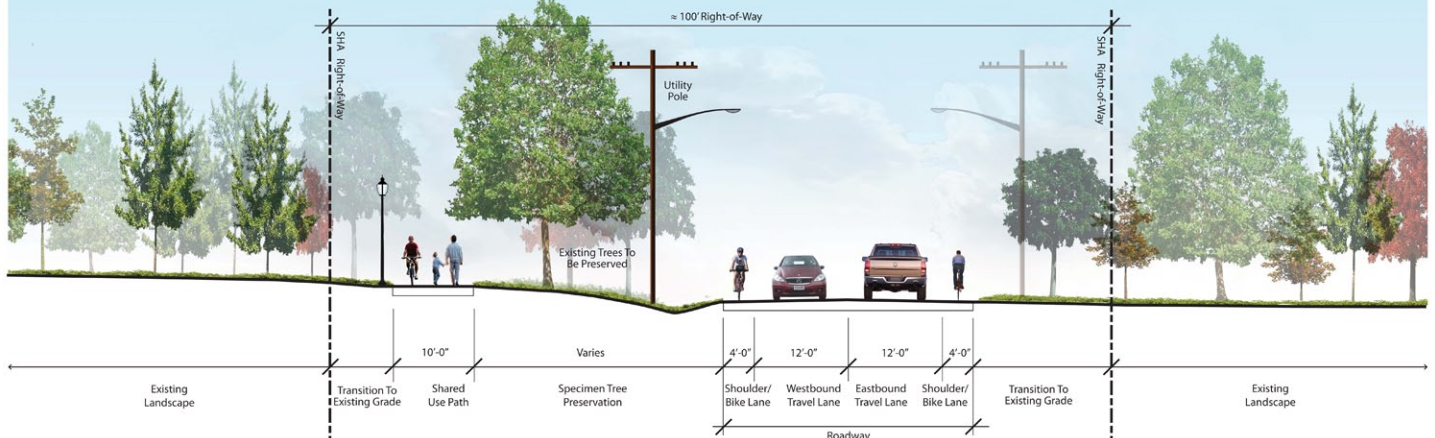
BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

ALTERNATE 2 - MASTER PLAN SECTIONS
Dimensions may be subject to change during design phase.

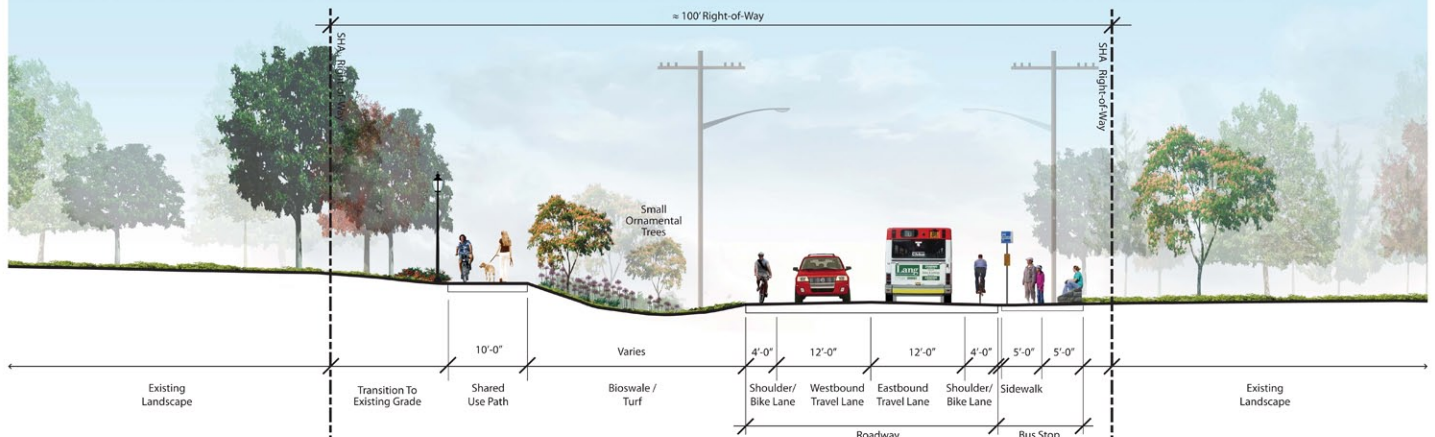
Section A-A



Section B-B



Section C-C



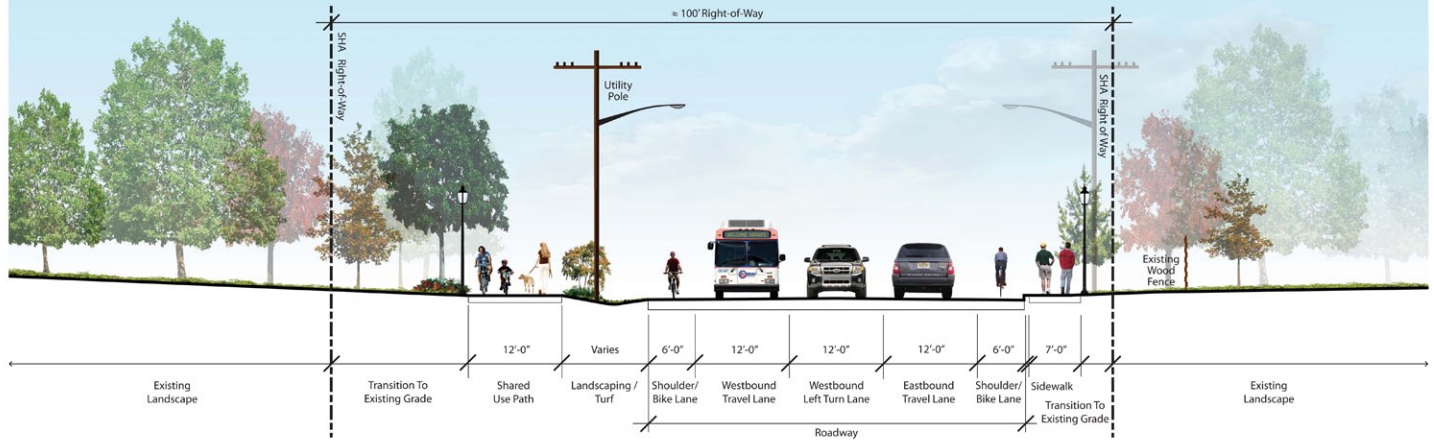


Planning
Maryland County Department of Transportation

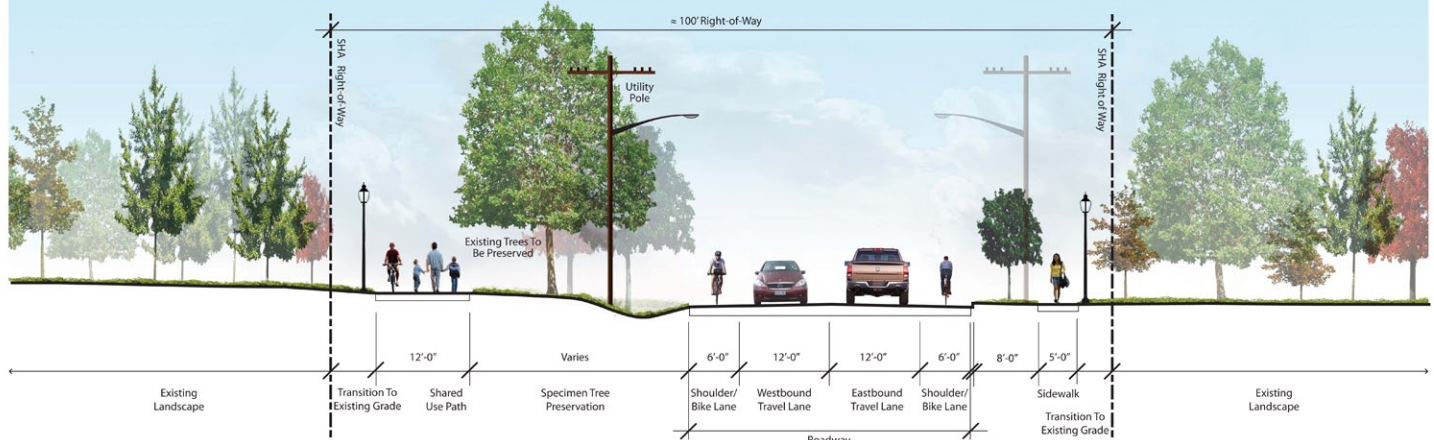
BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

ALTERNATE 3 - ENHANCED MASTER PLAN SECTIONS
Dimensions may be subject to change during design phase.

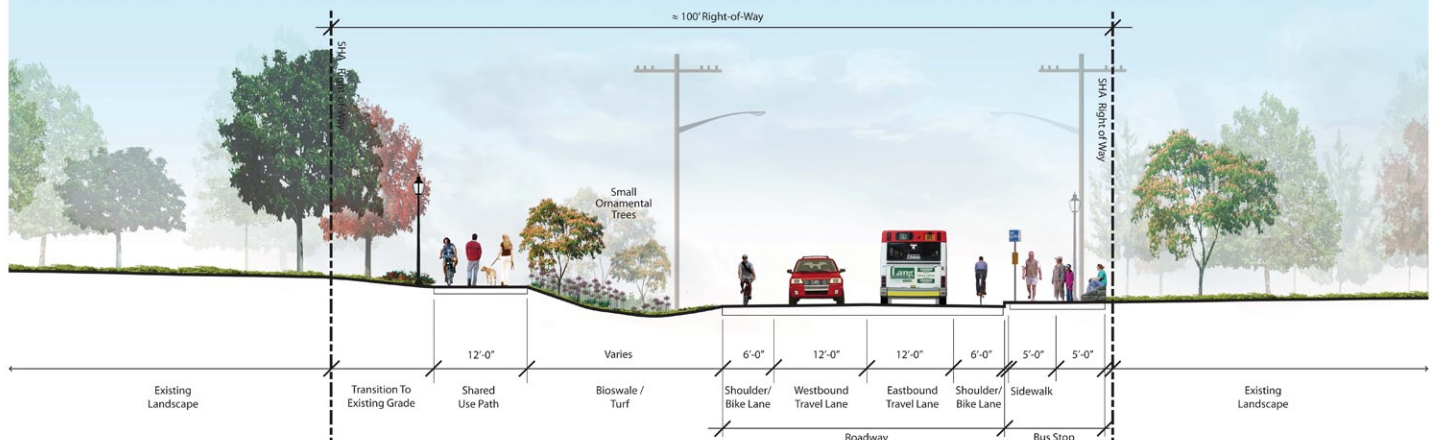
Section A-A



Section B-B



Section C-C



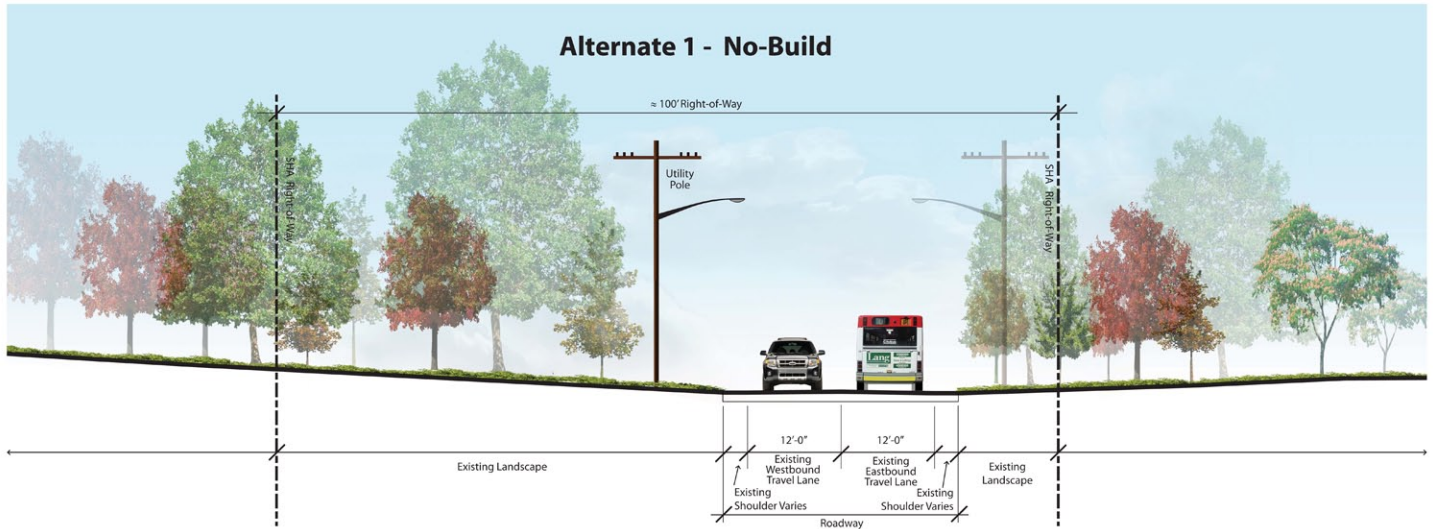


BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

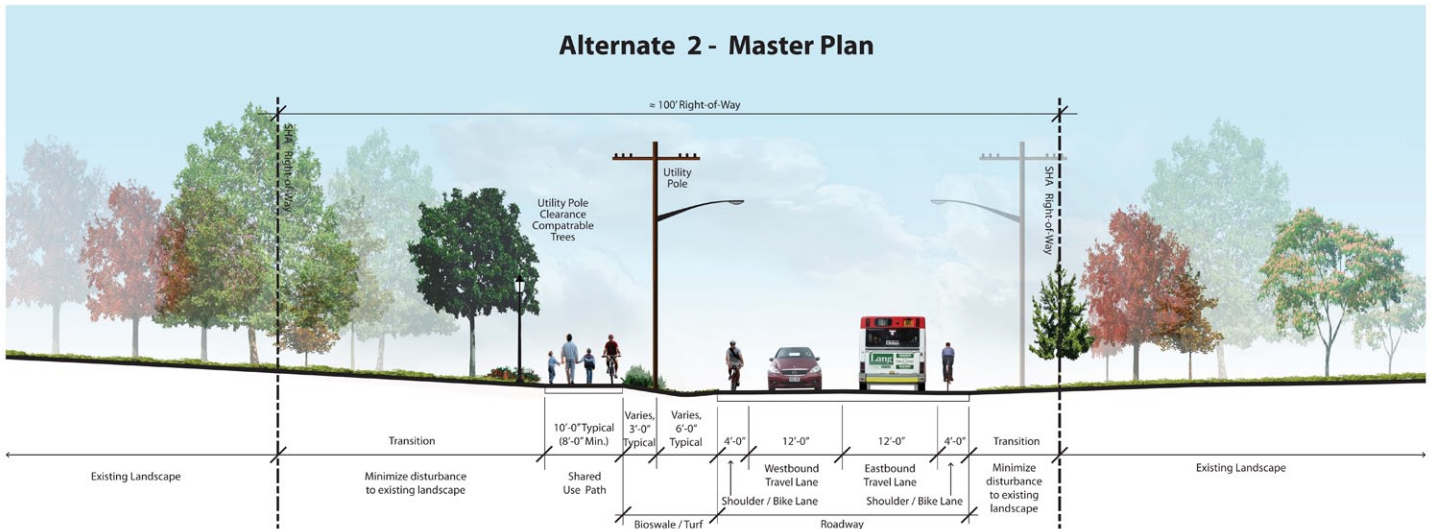
TYPICAL SECTIONS - ALTERNATES 1, 2, & 3

Dimensions may be subject to change during design phase.

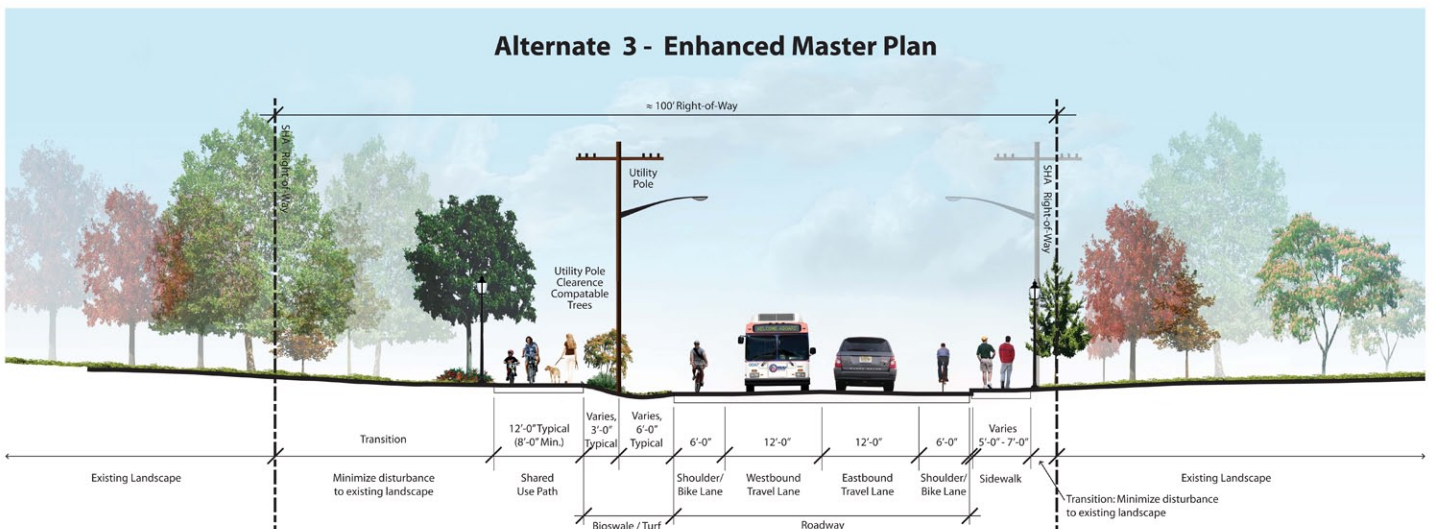
Alternate 1 - No-Build



Alternate 2 - Master Plan



Alternate 3 - Enhanced Master Plan



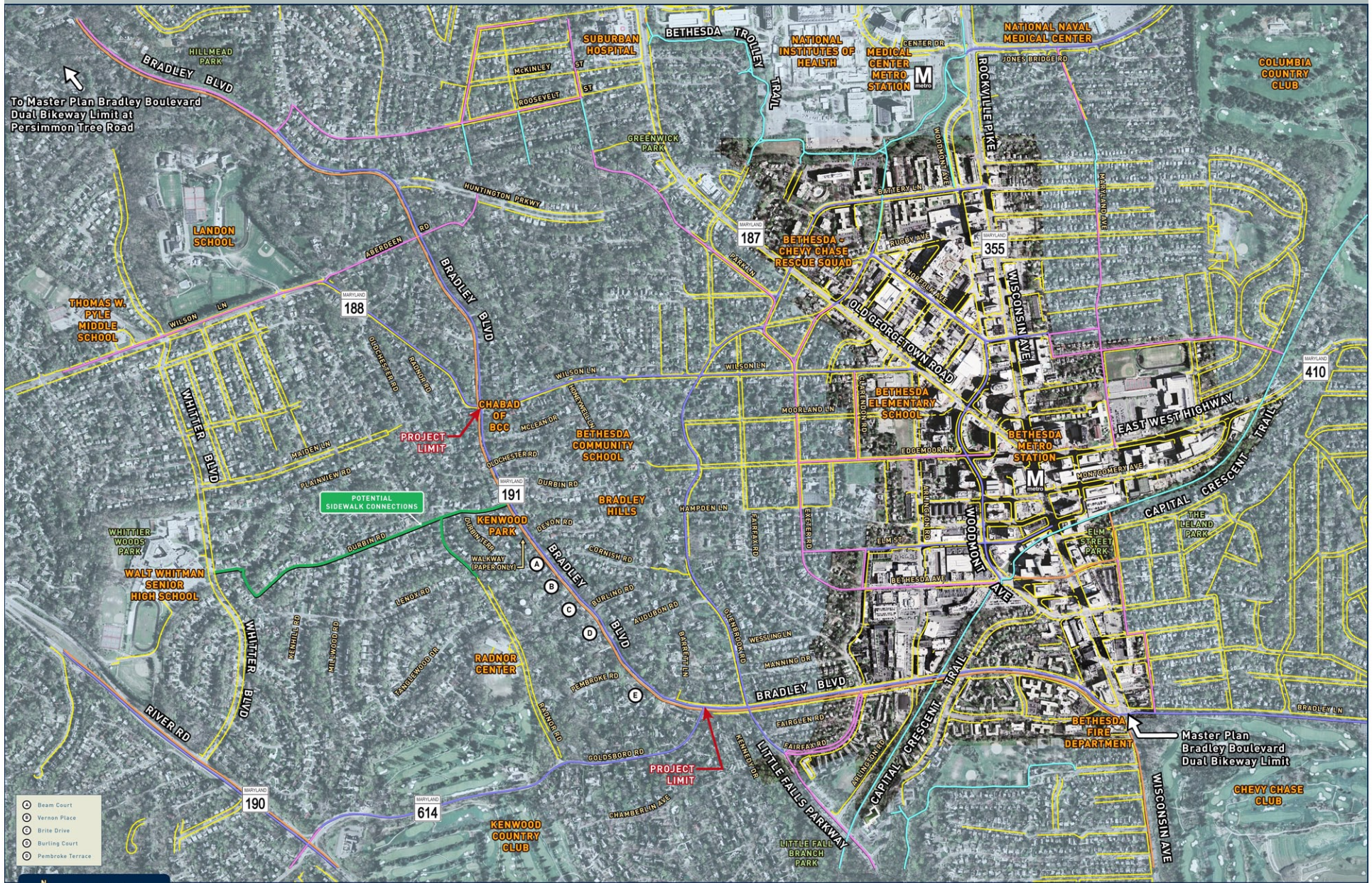




Planning

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

BIKEWAY AND SIDEWALK CONNECTIVITY



- Beam Court
- Vernon Place
- Britle Drive
- Burling Court
- Pembroke Terrace



SCALE: 1" = 100'

- Existing Sidewalks
- Existing Shared Use Path
- Proposed Shared Use Path
- Potential Sidewalk Connections
- Existing Shared Roadway/Bike Lanes
- Proposed Shared Roadway/Bike Lanes
- Bethesda Central Business District

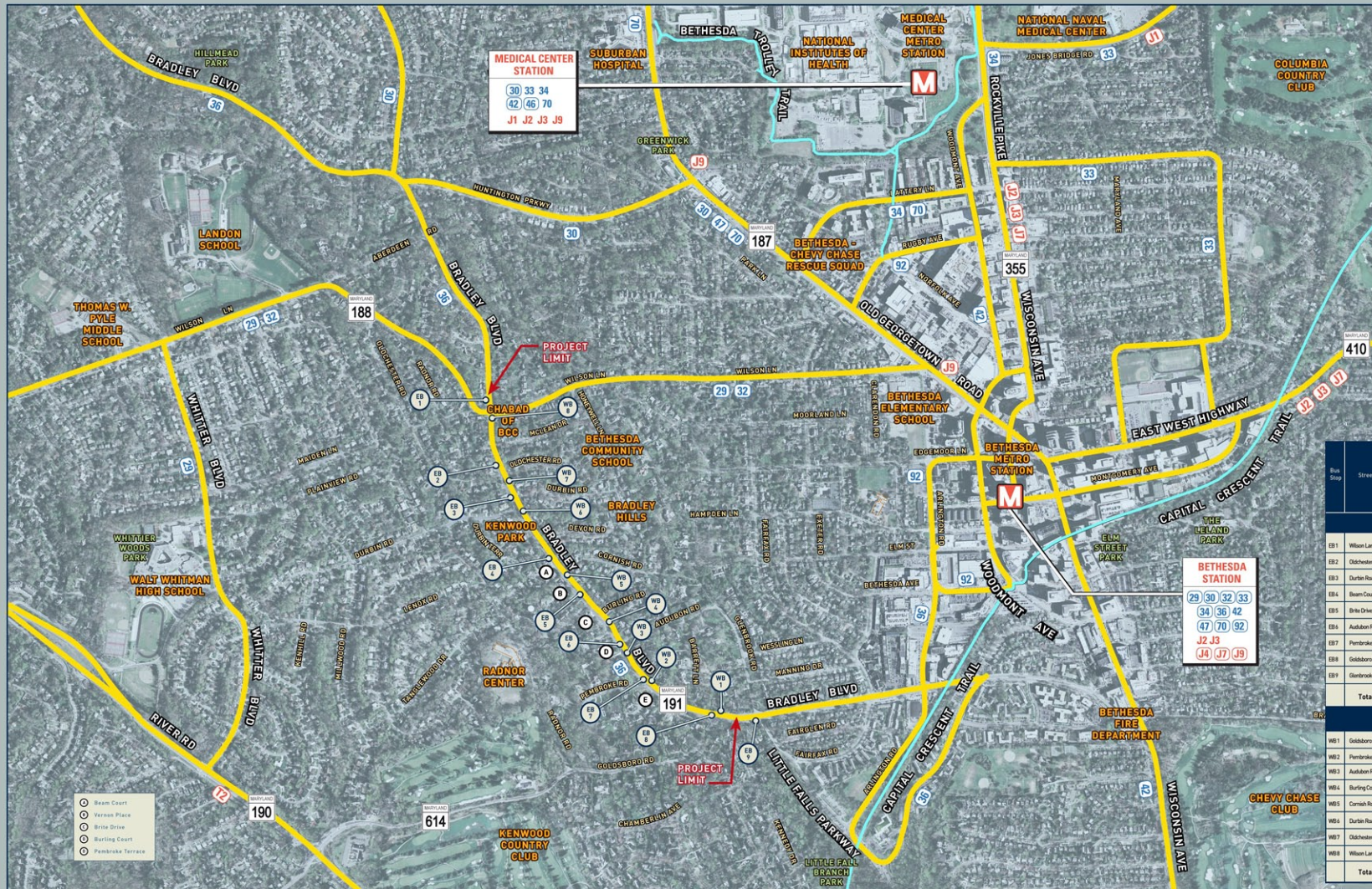
WRA WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS-ARCHITECTS-PLANNERS EST. 1915



Planning
Maryland Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

PUBLIC TRANSPORTATION



Bus Stop	Streets	AM		MID-DAY		PM		NIGHT		TOTAL
		4:55 AM - 8:55 AM		8:55 AM - 3:56 PM		3:57 PM - 6:56 PM		After 6:57 PM		
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	
Route 36 Eastbound FY09 Weekday										
EB1	Wilson Lane	0	0	0	3	0	0	0	0	3
EB2	Oldhewer Road	1	0	1	0	0	0	0	0	2
EB3	Durbin Road	6	0	2	0	1	0	0	0	9
EB4	Beam Court	2	0	0	0	0	0	0	0	2
EB5	Brite Drive	6	0	6	1	4	0	0	0	16
EB6	Austlon Road	2	0	0	0	2	0	0	0	4
EB7	Pembroke Road	0	0	0	0	0	0	0	0	0
EB8	Goldboro Road	0	0	1	1	0	0	0	0	1
EB9	Glendora Road	2	0	2	0	1	0	0	0	5
	Total	19	0	12	5	8	0	0	0	39
Route 36 Westbound FY09 Weekday										
WB1	Goldboro Road	0	0	0	0	0	0	0	0	0
WB2	Pembroke Road	0	0	0	1	0	0	0	0	1
WB3	Austlon Road	0	6	1	2	0	4	0	2	14
WB4	Burling Court	0	2	0	1	0	4	0	0	7
WB5	Conant Road	0	0	0	0	4	0	0	0	4
WB6	Durbin Road	0	2	0	3	0	3	0	1	9
WB7	Oldhewer Road	0	0	0	0	2	0	0	0	2
WB8	Wilson Lane	0	3	1	1	0	1	0	0	5
	Total	0	13	2	8	0	18	0	3	42

LEGEND

Bus Route

Existing Shared Use Path

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Planning
Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD191) IMPROVEMENTS PROJECT

PHOTO MONTAGE



Looking East toward Wilson Lane Looking East toward Oldchester Road Looking East toward Durbin Road Looking East toward Beam Court Looking East toward Vernon Place Looking East at Brite Drive Looking East toward Audubon Road Looking East toward Pembroke Road Looking East toward Goldsboro Rd



SCALE: 1" = 100'



Planning
Prince George's County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

PRECEDENT IMAGES

Typical Shared Use Path / Streetscape Plantings



Typical Bioswale



MD 190, Potomac MD



Frederick County, MD

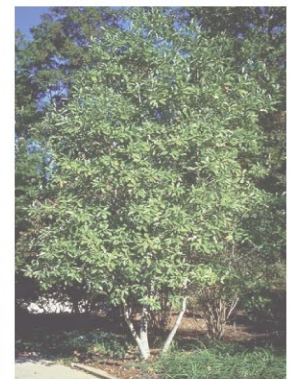


Anne Arundel County, MD



Frederick County, MD

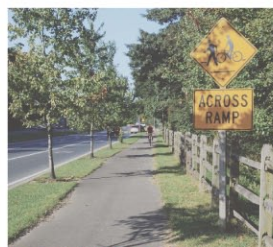
Typical Bioswale Plantings



Typical Shared Use Path



12' Shared Use Path



10' Shared Use Path, MD28



12' Shared Use Path



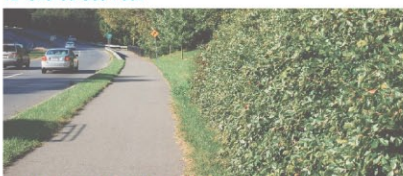
10' Shared Use Path, MD28 Norbeck Rd. MD



8' Shared Use Path, MD28 Norbeck Rd. MD



10' Shared Use Path



10' Shared Use Path, MD28 Norbeck Rd. MD

November 10, 2010
Public Participaton Materials

NEWSLETTERS



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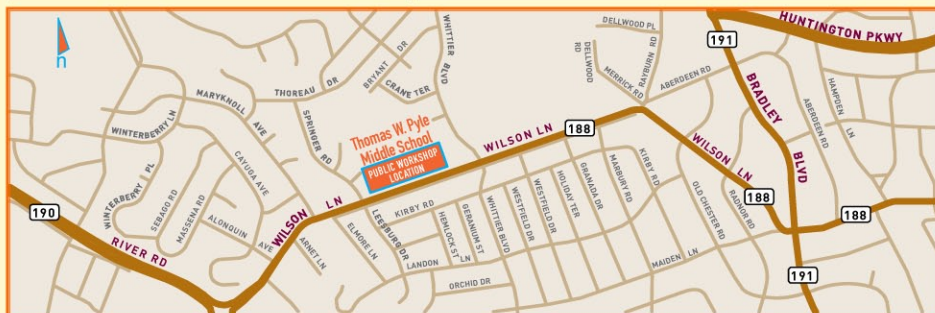
<http://www2.montgomerycountymd.gov/DOT-DTE/Projects/>

BRADLEY BOULEVARD IMPROVEMENTS PUBLIC WORKSHOP

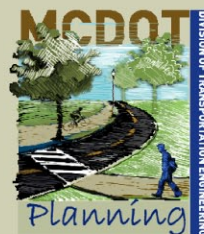
Thomas W. Pyle Middle School, Cafeteria
6311 Wilson Lane— Bethesda, MD 20817
Wednesday, November 10, 2010 - 7:00 - 9:00 PM

Directions to the Bradley Boulevard Improvements Public Workshop:

From Bradley Boulevard, head west on Wilson Lane to Thomas W. Pyle Middle School on the right. Parking is in front of and to the side of the building.



MCDOT wants your feedback: The MCDOT encourages you to provide your concerns on the Postage Paid Public Comments Form included with this newsletter. You can also e-mail your comments directly to the project manager at: patricia.shepherd@montgomerycountymd.gov



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For alternative formats of this newsletter, contact the Division of Transportation Engineering at 240. 777. 7220
TTY users call MD relay.

The Plan Ahead is a project newsletter published by the MCDOT to encourage community participation.

October 2010

THE PLAN AHEAD

ARTHUR HOLMES, JR. - Director
Department of Transportation

BRADLEY BOULEVARD IMPROVEMENTS STUDY CONTINUES

The Montgomery County Department of Transportation (MCDOT) is inviting you to attend a Public Workshop for the Bradley Boulevard Improvements Study (Wilson Lane to Goldsboro Road). The purpose of the workshop is to update you on the status of the project, present three new alternatives, and receive your feedback.

BRADLEY BOULEVARD IMPROVEMENTS STUDY PUBLIC WORKSHOP

Wednesday, November 10, 2010
7:00 - 9:00 PM

Thomas W. Pyle Middle School
Cafeteria
6311 Wilson Lane • Bethesda, MD 20817

provements Study concepts expand the availability of transportation options by promoting priority to the movement of people rather than vehicles.

MASTER PLAN RECOMMENDATIONS
The 1990 Approved and Adopted Bethesda Chevy Chase Master Plan and the 2005 Countywide Bikeways Functional Master Plan recommends pedestrian connections and a dual bikeway along Bradley Boulevard. The Dual Bikeway features both an Off-Road Shared Use Path and On-Road Bike Shoulders.

Accordingly, in Spring 2009 MCDOT initiated a Facility Planning, Phase I Study to evaluate the need for sidewalks, master planned bicycle facilities and traffic safety improvements along Bradley Boulevard between Wilson Lane and Goldsboro Road. Concepts were developed for the proposed improvements.

PROJECT BACKGROUND

The Bradley Boulevard Improvements Study was initiated as a result of a request from the South Bradley Hills Civic Association for greater pedestrian access along Bradley Boulevard with the inclusion of a sidewalk along the north side of the roadway.

MCDOT's long term transportation vision is to provide equity and access to all users and concentrate investment in ways that yield the greatest good not only from a transportation standpoint, but also for overall safety and quality of life for its residents and workforce. As such, area master plans play an important role in determining how the County will accommodate existing as well as future growth. Master plans provide a policy framework to guide the development of projects and programs, advance the County's goals and objectives, and help direct investment. The Bradley Boulevard community played a significant role in developing the master plan vision for Bradley Boulevard which included the provision for bicycle access. In alignment with the master plan vision, the proposed Bradley Boulevard Im-

PUBLIC COMMENTS

On October 27, 2009, MCDOT's Division of Transportation Engineering hosted a public meeting for the Bradley Boulevard Improvements Study. Approximately 40 citizens attended. Three alternate plans were presented for the community to provide input. The Department has received over 140 written comments.

Approximately two-thirds of the comments received were in favor of the project and stated the importance of Bradley Boulevard as a bike route and expressed concern about the safety of the existing roadway. Another one-third of the comments were in opposition to the impacts the proposed improvements would have on the existing landscape. Many preferred that any proposed improvements be limited to a sidewalk.

The Department has received extensive feedback that cannot all be reproduced in this newsletter due to its size limitation. It was determined that the most frequently asked questions (FAQ's) and responses would be uploaded to the Bradley Boulevard Improvements Project website with hard copies available at the Public Workshop.

BRADLEY BOULEVARD IMPROVEMENTS STUDY

GO TO PROJECT WEBSITE FOR

FAQ ANSWERS:

<http://www2.montgomerycountymd.gov/ DOT-DTE/Projects/>

MCDOT appreciates the time and effort community leaders and residents took to share their concerns.

PROJECT STATUS

Since the October 2009 public meeting, the FY11-16 Capital Improvement Program (CIP) was approved. The Department's budget was decreased leading to a reduced level of service for projects including deferring the Bradley Boulevard Improvement Study for one year.

During this past year, MCDOT has continued to respond to the public's comments by performing additional environmental and storm water management analyses, providing more detailed tree preservation assessments by a County Arborist and carefully reviewing your comments and revising the alternatives accordingly. The Department thanks you for your patience during these difficult times.

In response to public feedback, three modified alternatives have been developed:

1. Sidewalk on **NORTH SIDE** of Bradley Boulevard while providing consistent bikeable shoulders.
2. Sidewalk on **BOTH SIDES** of Bradley Boulevard while providing consistent bikeable shoulders.
3. 8 foot **SHARED USE PATH** (reduced from 12') on **NORTH SIDE** and Sidewalk on **SOUTH SIDE** of Bradley Boulevard while providing consistent bikeable shoulders.

PUBLIC WORKSHOP FORMAT

What should I expect at the public workshop?

The public workshop will be an open house format. A short presentation or overview of the project will be provided at the beginning, then we will break up into smaller groups where Study Team Members will be at specific stations representing study area roadway segments. Individual concerns and questions will be answered at this time. This format will allow us to address your individual concerns.

What happens after the Public Workshop?

After the public workshop, the community will have four (4) weeks to review and submit comments. It is advised that all comments be received in writing no later than **December 8, 2010**. Should you want to meet individually with the project manager, please contact:

Patricia Shepherd, Project Manager
Phone: 240-777-7231 or send an e-mail to:
patricia.shepherd@montgomerycountymd.gov

The Life of a Transportation Project

FACILITY PLANNING-PHASE I

Collect data, obtain public input, develop concept plans, evaluate and select preferred alignment/cross section. Present Recommended Alternative to Planning Board and obtain MCDOT Director's and Montgomery County Council's Transportation Infrastructure, Energy and Environment Committee (T&E) approval.

WE ARE HERE

Project Prospectus To Be Completed Spring 2011

FACILITY PLANNING-PHASE II

Develop 35% design plans, cost estimate and project schedule. (Typically takes two years for completion).

Submit to Montgomery County Council for approval to be included in Capital Improvement Program (CIP).

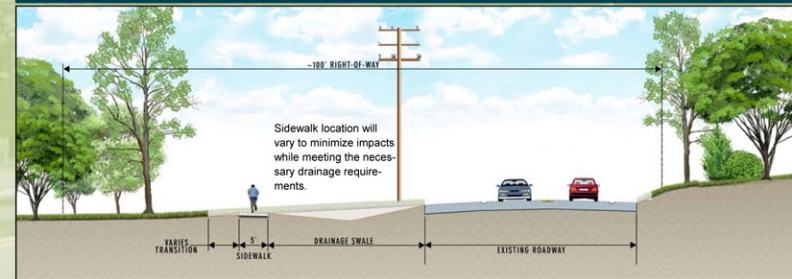
If approved for full funding and is included in the CIP, complete final design (approximately 2 years) and construction (approximately 1 year).

LEGEND

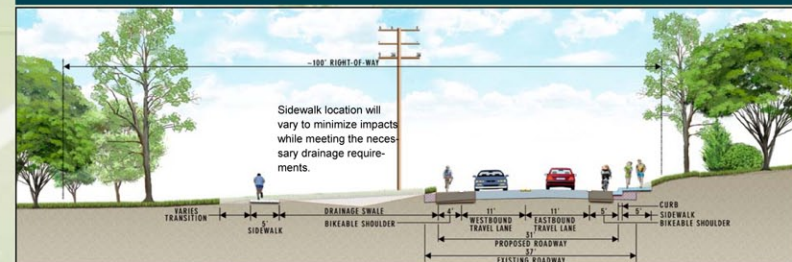
CURRENTLY FUNDED

NOT FUNDED

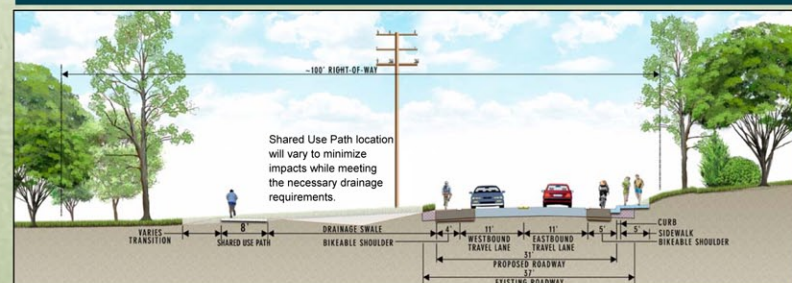
Sidewalk North Side Only with Bikeable Shoulders



Sidewalk North and South Side with Bikeable Shoulders



8' Shared Use Path North Side and Sidewalk South Side with Bikeable Shoulders





Montgomery County Department of Transportation (MCDOT)
Division of Transportation Engineering
100 Edison Park Drive, 4th Floor
Gaithersburg, Maryland 20878
Phone: 240-777-7220 Fax: 240-777-7277

Bradley Boulevard Improvements Facility Planning Phase I Study

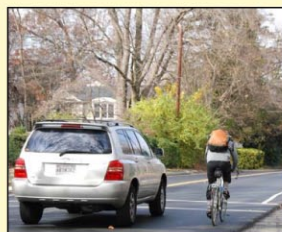
Log onto: www2.montgomerycountymd.gov/DOT-DTE/Projects/ProjectHome.aspx

And scroll to Bradley Boulevard Improvements Study



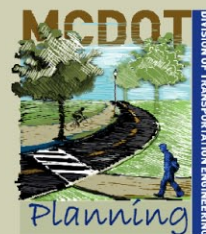
Safety improvements at Wilson Lane and Bradley Boulevard and Goldsboro Road and Bradley Boulevard

Safer pedestrian access along Bradley Boulevard for school aged children, transit users and all pedestrians



Safer on road bikeable shoulders for cyclists along Bradley Boulevard

MCDOT wants your feedback: The MCDOT encourages you to provide your concerns on the Postage Paid Public Comments Form included with this newsletter. You can also e-mail your comments directly to the project manager at: patricia.shepherd@montgomerycountymd.gov



ISIAH LEGGETT
Montgomery County Executive

DIVISION OF TRANSPORTATION ENGINEERING

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Holger Serrano, P.E.
Deputy

Sogand Seirafi, P.E.
Planning and Design

Tim Cupples, P.E.
Construction

Tom M. Reise
Property Acquisition

For alternative formats of this newsletter, contact the Division of Transportation Engineering at 240. 777. 7220
TTY users call MD relay.

The Plan Ahead is a project newsletter published by the MCDOT to encourage community participation.

March 2011

THE PLAN AHEAD

ARTHUR HOLMES, JR. - Director
Department of Transportation

BRADLEY BOULEVARD IMPROVEMENTS TEAM SELECTS RECOMMENDED ALTERNATIVE

The Montgomery County Department of Transportation (MCDOT) is concluding the Phase I Facility Planning Study for the Bradley Boulevard Improvements Project (Wilson Lane to Goldsboro Road) located in Bethesda, Maryland.

NEWSLETTER PURPOSE

The purpose of this newsletter is to summarize the project's history, present the study team's technical Recommended Alternative, convey the next steps of the evaluation process and continue to solicit your comments on the Bradley Boulevard Improvements Study.

BACKGROUND

The Bradley Boulevard Improvements Study was initiated in March 2009 as a result of a request in 2003 from the South Bradley Hills Civic Association to install a sidewalk along the north (east) side of Bradley Boulevard between Barrett Lane and Wilson Lane for greater connectivity in the sidewalk network in the area. Subsequently, MCDOT received requests from MoBike (Montgomery Bicycle Advocates), WABA (Washington Area Bicycle Association) and individual bicycle commuters to include the master planned bicycle facilities. As part of a comprehensive facility planning evaluation, the Phase I Study is assessing transportation improvements as requested by the public as well as incorporating the master plan vision for pedestrian and bicycle facility connections through this vital corridor.

MASTER PLAN RECOMMENDATIONS

The 1990 Approved and Adopted Bethesda Chevy Chase Master Plan and the 2005 Countywide Bikeways Functional Master Plan recommends pedestrian connections and a dual bikeway along Bradley Boulevard. The Dual Bikeway features both an Off-Road Shared Use Path for recreational cyclists and walkers and On-Road bikeable shoulders for more experienced cyclists.

STUDY EFFORTS AND PUBLIC OUTREACH

The study team conducted field visits, gathered data and developed preliminary concepts.

The Department held two public information sessions. On October 27, 2009 MCDOT's Division of Transportation Engineering hosted its first public meeting for the Bradley Boulevard Improvements Study. An overview of the project, its purpose and need, preliminary findings and several preliminary concepts were presented to the public. Approximately forty (40) citizens attended. A public comment period was provided to encourage you and the community to share your concerns and provide written comments. The Department received over 140 written comments.

During this past year, MCDOT continued to respond to the public's comments and performed additional environmental and storm water management analyses, provided more detailed tree preservation assessments by a County Arborist and carefully reviewed your comments and revised the alternatives accordingly. On November 10, 2010 a public workshop was held to update you on the status of the project, present three new alternatives (4A, 4B, and 4C) and receive your feedback. Fifty - five (55) citizens were in attendance. After the November public workshop the Department extended the public input comment period from December 8, 2010 to January 12, 2011 to ensure that there was enough time for community review of all the alternatives presented including clarification that the "No Build" is also considered a viable option. Eighty - four (84) written comments were received and evaluated.

PUBLIC COMMENTS

PUBLIC COMMENTS SUMMARY

Support for Build Alternate	Support for No-Build Alternate I
Alternate 4A	23
Alternate 4B	9
Alternate 4C	10
Not specified	21
TOTAL	63

The comments are 3:1 in support of the project. Those in favor emphasized the impor-

BRADLEY BOULEVARD IMPROVEMENTS STUDY - RECOMMENDED ALTERNATIVE

tance of pedestrian and cyclist safety along the existing stretch of roadway and the connectivity to schools, trails, retail and employment centers (Bethesda Central Business District) and places of worship. Those opposed to the project were concerned about costs in this fiscal climate and the impacts the proposed improvements would have on the existing landscape and character of the neighborhood.

In addition, the community requested that the project limits be extended further east to Glenbrook Road for better access to the Capital Crescent Trail. All public meeting presentation materials were uploaded to the County's project website and a list of Frequently Asked Questions was developed to address community questions and concerns.

STUDY AREA

Bradley Boulevard is located in a single family residential community in Bethesda, Maryland. There are several important destinations for pedestrians and bicyclists in the study area, including places of worship, the Bethesda community school, Bradley Hills Elementary School, Thomas W. Pyle Middle School and the Walt Whitman High School. There are three Metro stations within 2 miles of the study area and 16 transit bus stops along this stretch of Bradley Boulevard. The Bethesda Central Business district is located one mile to the east from the study area where there is a large employment center and many office and commercial uses. The Capital Crescent Trail is a regional bicycle facility located at the intersection of Bradley Boulevard and Little Falls Parkway. The study recommends encouraging multimodal transportation options for all users by providing safe access routes. In general, sidewalks or shared use paths are intended to provide vital pedestrian links to community facilities.



In response to public feedback, the following Alternatives have been considered as a Recommended Alternative for further study:

1. **NO BUILD**—no improvements will be provided to Bradley Boulevard.
2. **Sidewalk on NORTH SIDE** of Bradley Boulevard while providing consistent bikeable shoulders. (ALT. 4C)
3. **Sidewalk on BOTH SIDES** of Bradley Boulevard while providing consistent bikeable shoulders. (ALT. 4B)
4. **8 foot SHARED USE PATH** (reduced from 12') on **NORTH SIDE** and Sidewalk on **SOUTH SIDE** of Bradley Blvd. while providing consistent bikeable shoulders. (ALT. 4A) - **SELECTED AS RECOMMENDED ALTERNATIVE BY STUDY TEAM**

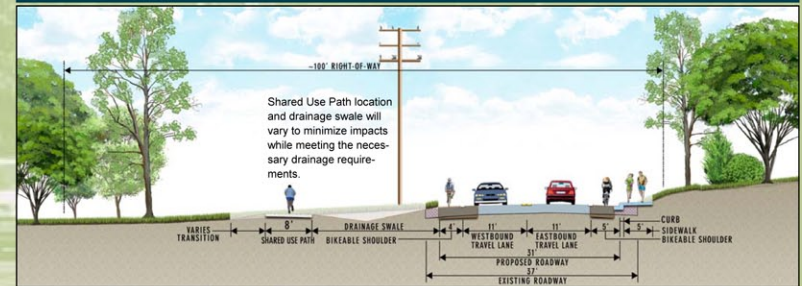
NEXT STEPS

The following are the next steps that will conclude the Bradley Boulevard Improvements Project:

1. The Recommended Alternative may be further refined based on the public comments received.
2. The Project Prospectus will be finalized, which summarizes Facility Planning, Phase I and includes all public comments received. The Prospectus will be available on our website and will be reviewed by the M-NCPPC Planning Board, elected officials, and the MCDOT Director.
3. A project briefing will be scheduled with the M-NCPPC Planning Board. Formal public testimony will be permitted. Date to be determined. For more information, please contact M-NCPPC at 301-495-4605 or log onto: www.montgomeryplanningboard.org/agenda/index.shtm
4. The project will be presented to Montgomery County Council's Transportation, Infrastructure, Energy & Environment Committee (T&E) for concurrence. Date to be determined. For more information, call 240-777-7900 or log onto: www.montgomerycountymd.gov/council
5. The MCDOT Director will evaluate the Final Project Prospectus and the Recommended Alternative
6. If concurrence is received on the Recommended Alternative, the Bradley Boulevard Improvements project will advance to Facility Planning, Phase II. Phase II is commonly referred to as preliminary engineering (35% design), where impacts are identified, and a cost estimate and project schedule are developed. Phase II is estimated to take 18 months to complete.
7. At the conclusion of Phase II, the public, MCDOT Director, and elected officials will assess the Benefits of the Bradley Boulevard Improvements Project. If the project merits a need, it will be included as part of the Capital Improvements Program (CIP) to receive funding for final design and construction. Final design and construction may take up to three years.

Should this project advance to design and construction, MCDOT will meet with adjacent property owners to address individual concerns.

RECOMMENDED ALTERNATIVE



8' Shared Use Path North Side and Sidewalk South Side with Bikeable Shoulders

RECOMMENDED ALTERNATIVE— ALTERNATIVE 4A has been selected to advance to Facility Planning, Phase II which will allow for refinement of impacts, further development of drainage and stormwater management techniques and the estimation of project costs.**

Alternative 4A was selected because it meets the Purpose and Need of the project as well as the objectives of the local area Master Plans. Recommended Alternative 4A:

- Provides safe and continuous pedestrian access on both sides of Bradley Boulevard for school aged children, transit users and all pedestrians where there is currently a gap in the sidewalk connectivity network.
- Improves pedestrian and cyclist access to major destinations along and beyond the study area.
- Improves safety for all users at the intersections of Bradley Boulevard and Wilson Lane and Bradley Boulevard and Goldsboro Road.
- Improves the drainage conditions along both sides of Bradley Boulevard with environmentally friendly facilities that will meet current stormwater management requirements. Drainage swale widths will be minimized to reduce impacts to trees and existing landscape while still being permissible.

**** As part of MCDOT's further evaluation of impacts in Facility Planning Phase II, the 8 foot shared use path on the north side may be modified to a 5 foot wide sidewalk if significant features can be avoided or if there are environmental or cost benefits.**

Should you want to meet individually with the project manager, please contact:

Patricia Shepherd, Project Manager
Phone: 240-777-7231 or send an e-mail to:
patricia.shepherd@montgomerycountymd.gov

November 10, 2010
Public Participaton Materials

DISPLAY BOARDS

Typical Sections

Alternate Plans

Photo Renderings

Bike and Sidewalk Connectivity

PublicTransportation

Photo Montage

Precedent Images

Impact Analysis

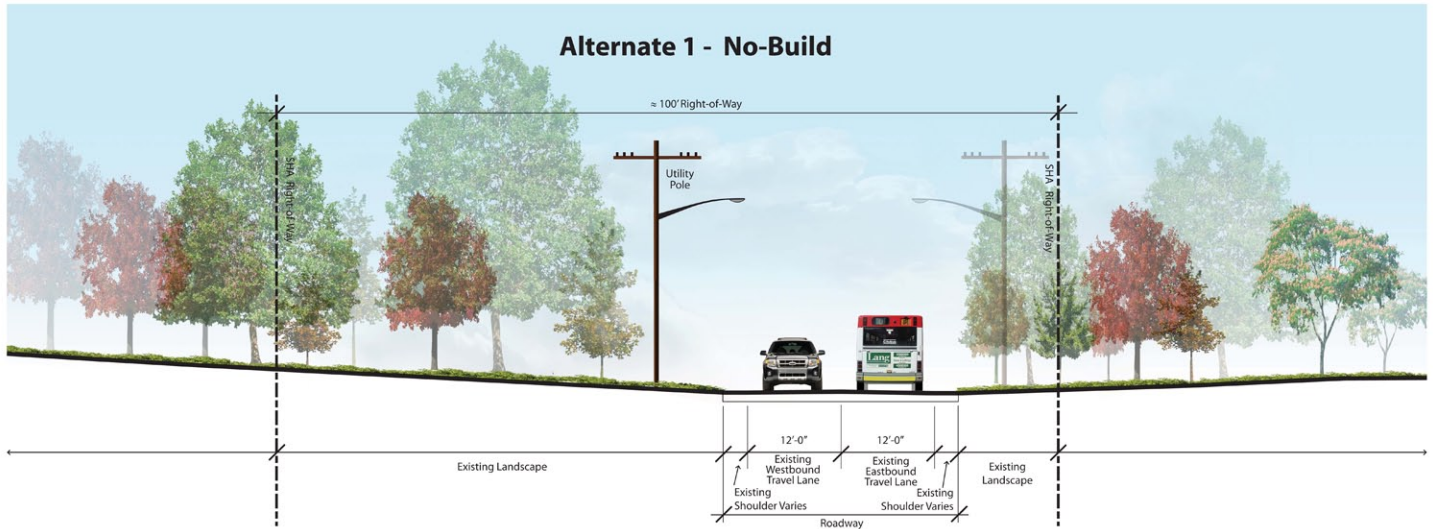


BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

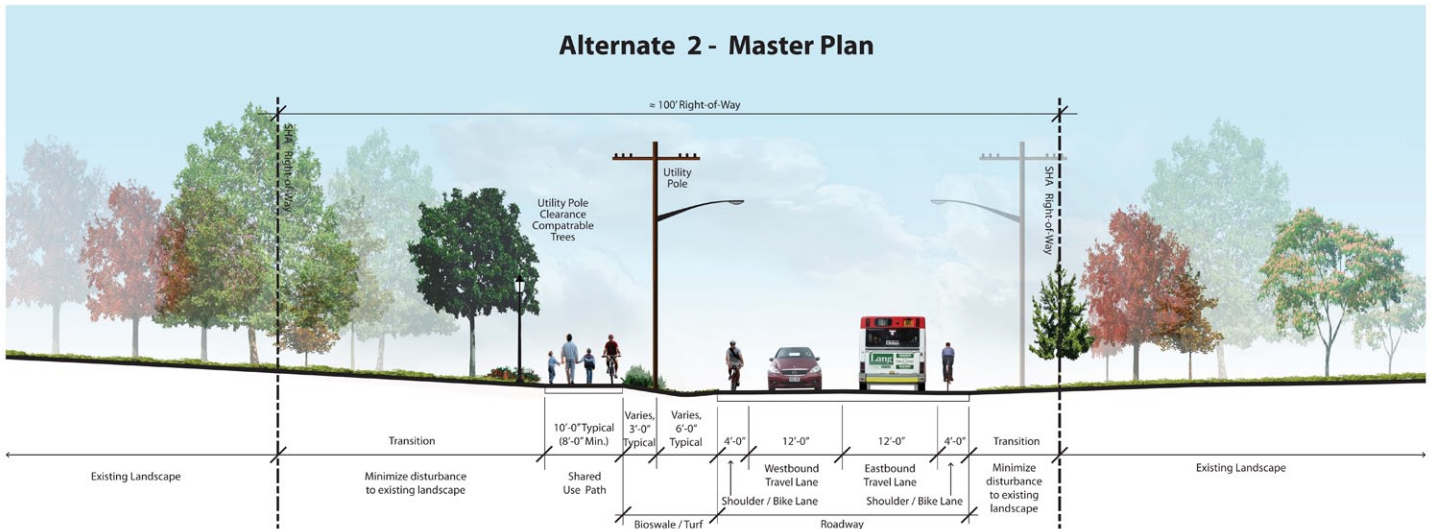
TYPICAL SECTIONS - ALTERNATES 1, 2, & 3

Dimensions may be subject to change during design phase.

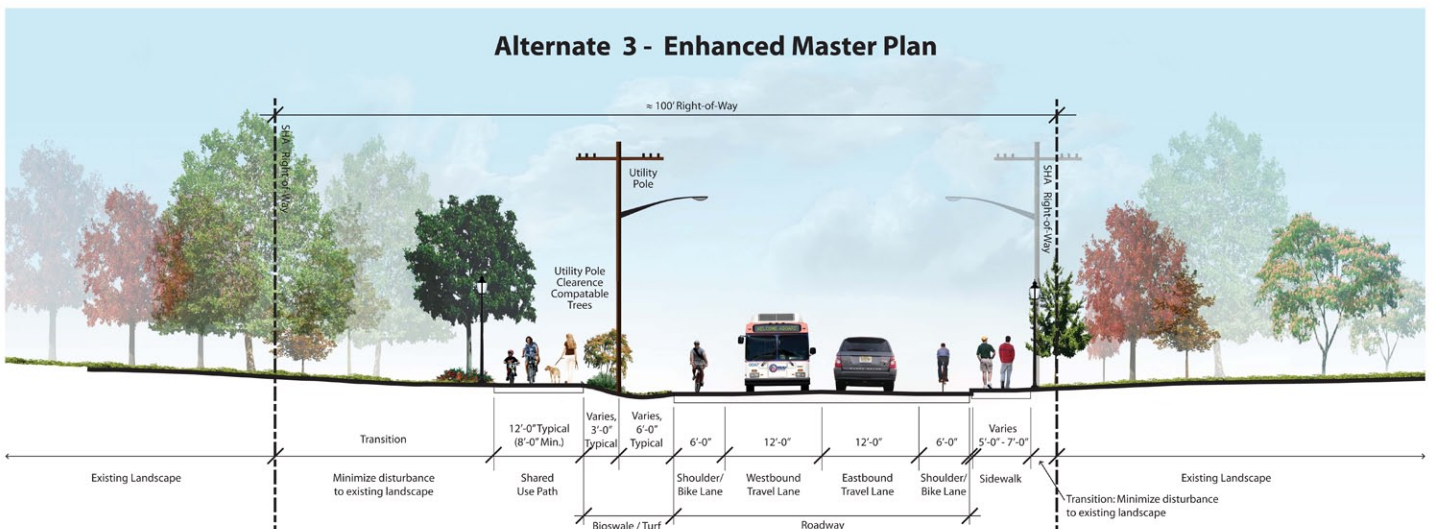
Alternate 1 - No-Build



Alternate 2 - Master Plan



Alternate 3 - Enhanced Master Plan



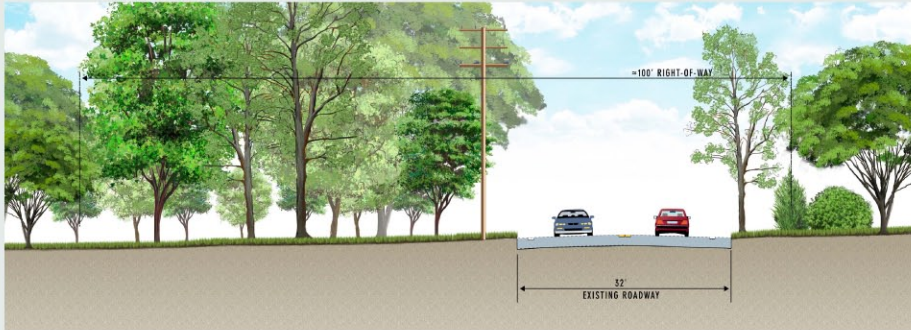


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Montgomery County Department of Transportation

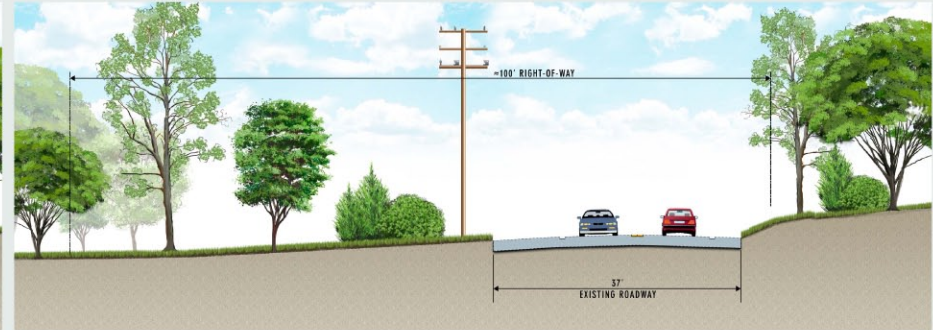
BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

ALTERNATE 1 - NO BUILD

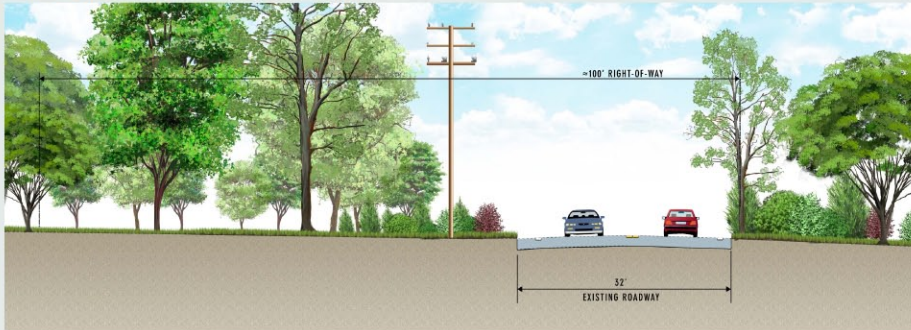
WILSON LANE TO MCLEAN DRIVE



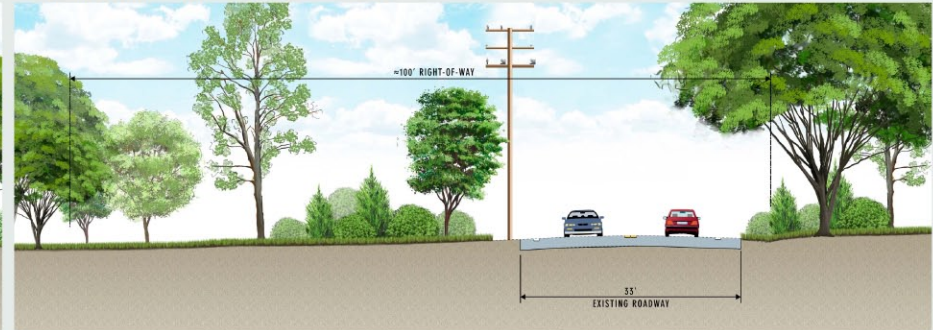
BRITE DRIVE TO AUDUBON ROAD



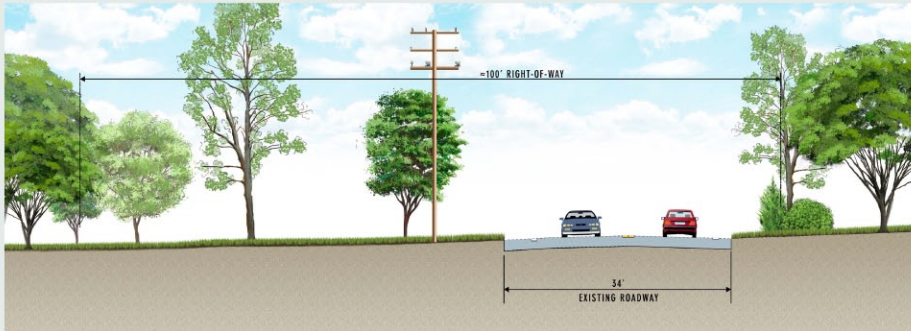
MCLEAN DRIVE TO DURBIN ROAD



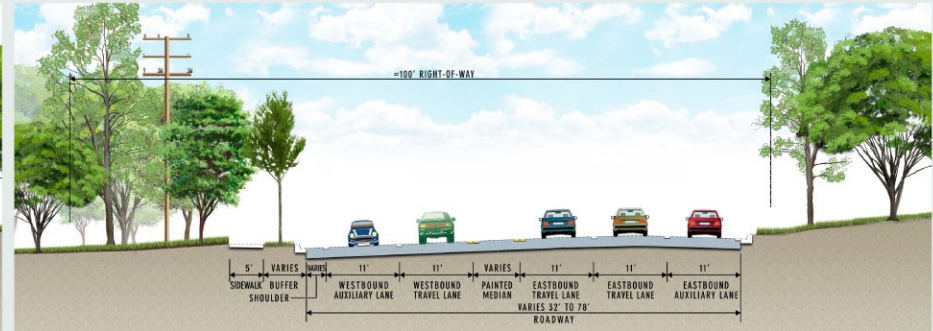
AUDUBON ROAD TO BARRETT LANE



DURBIN ROAD TO BRITE DRIVE



BARRETT LANE TO GOLDSBORO ROAD



LEGEND

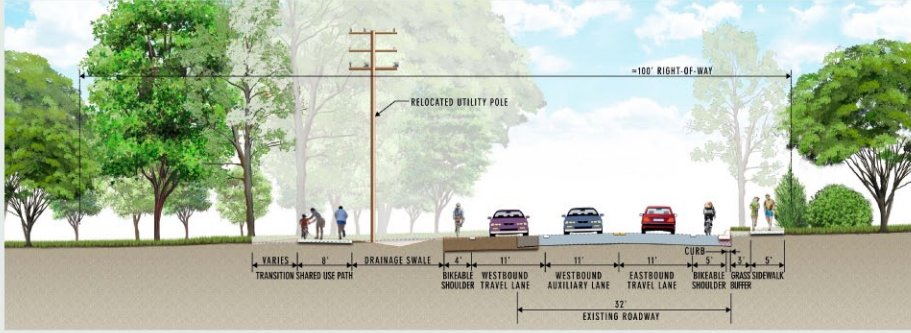
Existing Roadway Shared Use Path or Sidewalk Proposed Full Depth Pavement Construction Existing to be Removed



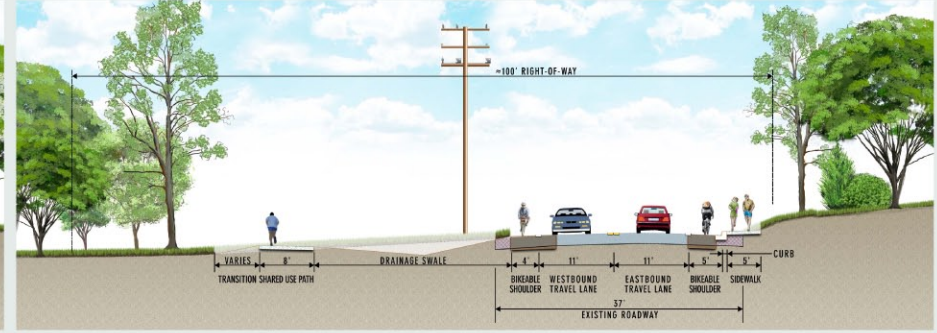
BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

ALTERNATE 4A - 8' SHARED USE PATH NORTH SIDE AND SIDEWALK SOUTH SIDE WITH BIKEABLE SHOULDERS

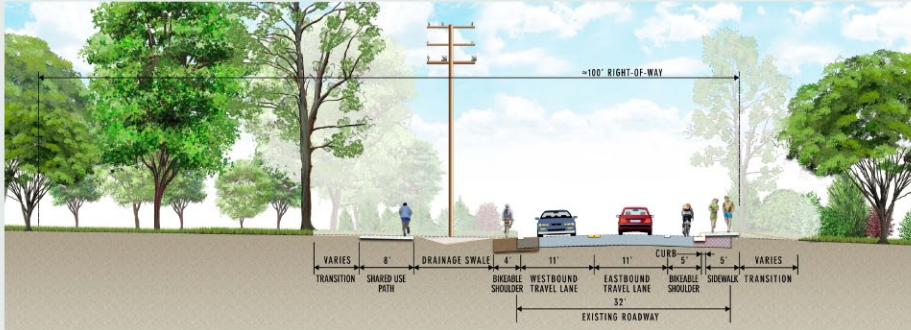
WILSON LANE TO MCLEAN DRIVE



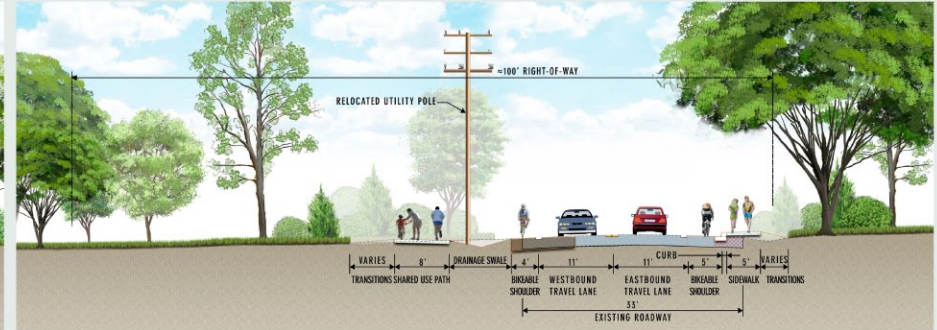
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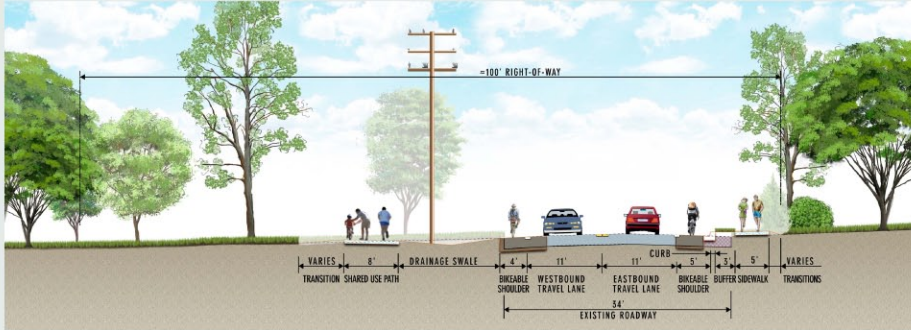
MCLEAN DRIVE TO DURBIN ROAD



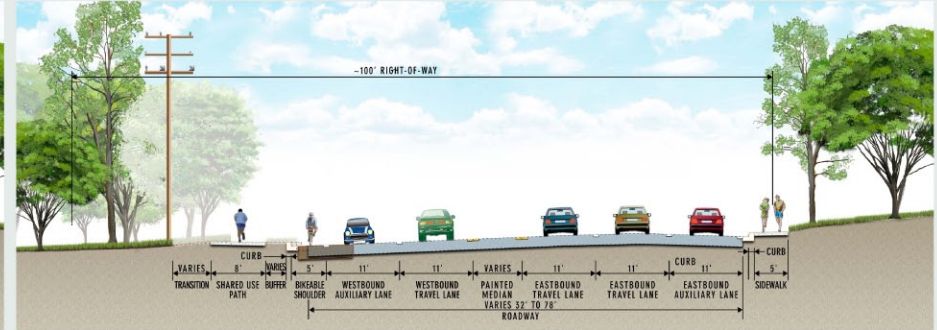
AUDUBON ROAD TO BARRETT LANE



DURBIN ROAD TO BRITE DRIVE



BARRETT LANE TO GOLDSBORO ROAD



LEGEND

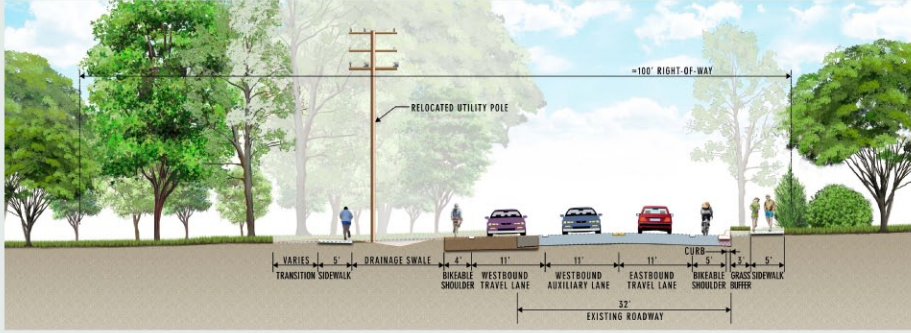
Existing Roadway Shared Use Path or Sidewalk Proposed Full Depth Pavement Construction Existing to be Removed



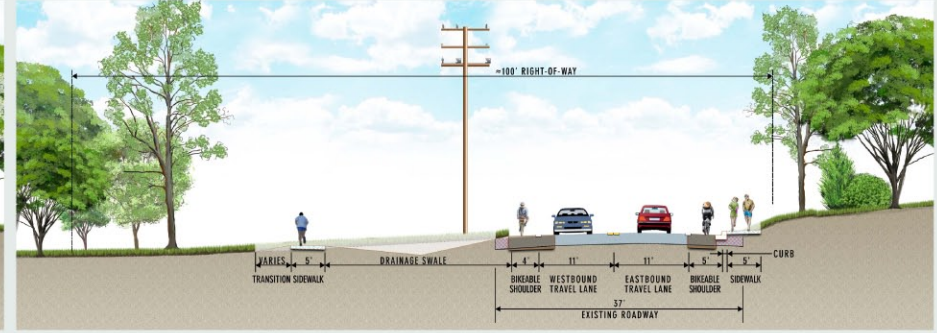
BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

ALTERNATE 4B - SIDEWALK NORTH AND SOUTH SIDES WITH BIKEABLE SHOULDERS

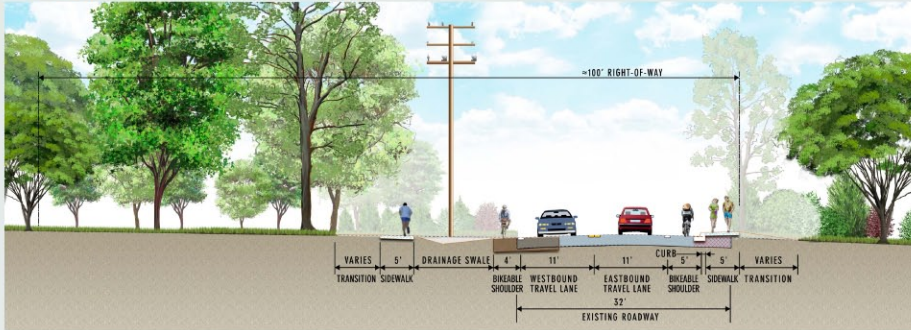
WILSON LANE TO MCLEAN DRIVE



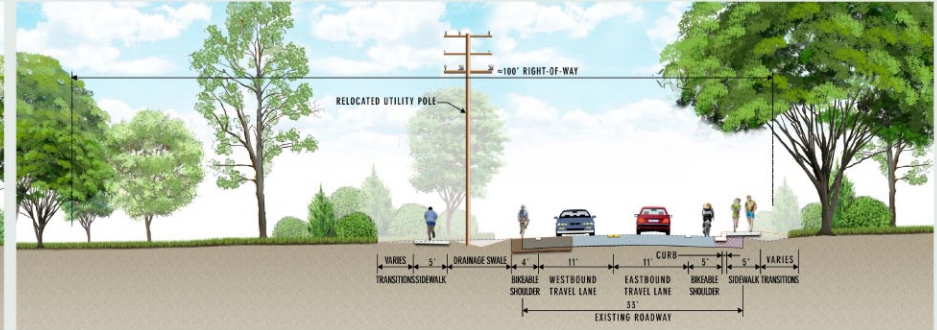
BRITE DRIVE TO AUDUBON ROAD



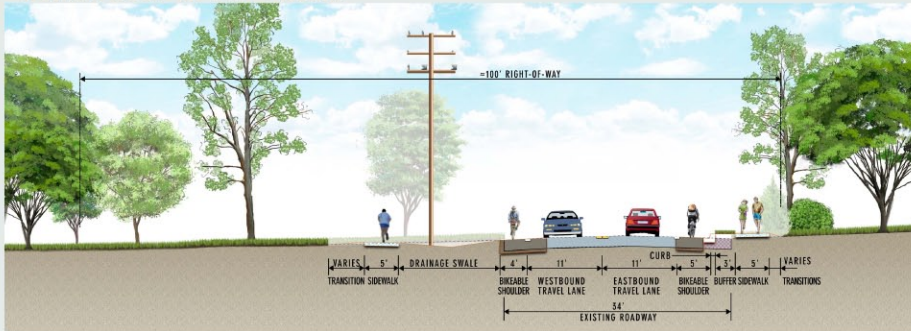
MCLEAN DRIVE TO DURBIN ROAD



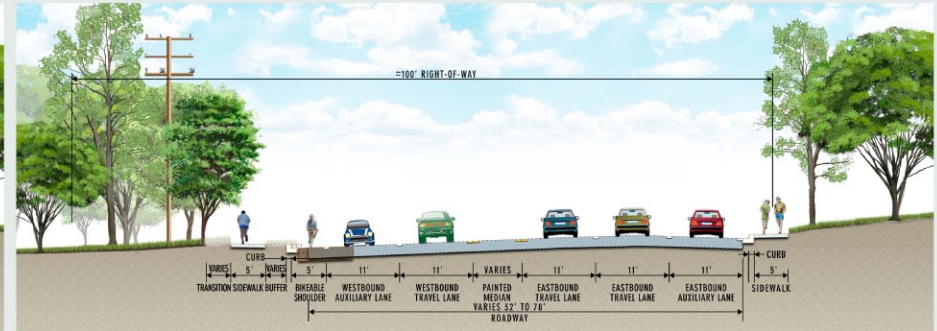
AUDUBON ROAD TO BARRETT LANE



DURBIN ROAD TO BRITE DRIVE



BARRETT LANE TO GOLDSBORO ROAD



LEGEND

Existing Roadway Shared Use Path or Sidewalk Proposed Full Depth Pavement Construction Existing to be Removed

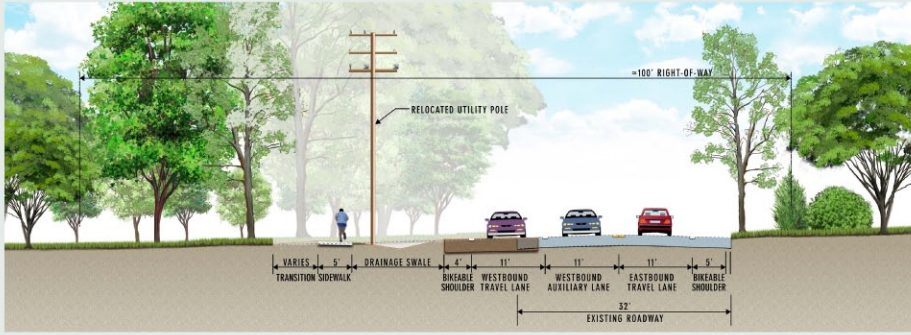


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Montgomery County Department of Transportation

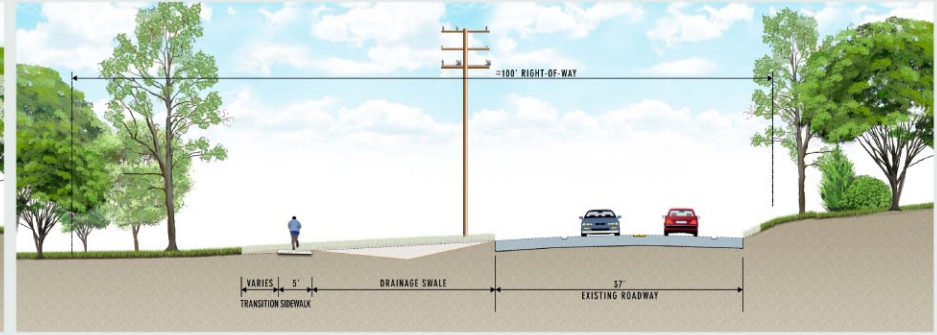
BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

ALTERNATE 4C - SIDEWALK NORTH SIDE ONLY WITH BIKEABLE SHOULDERS

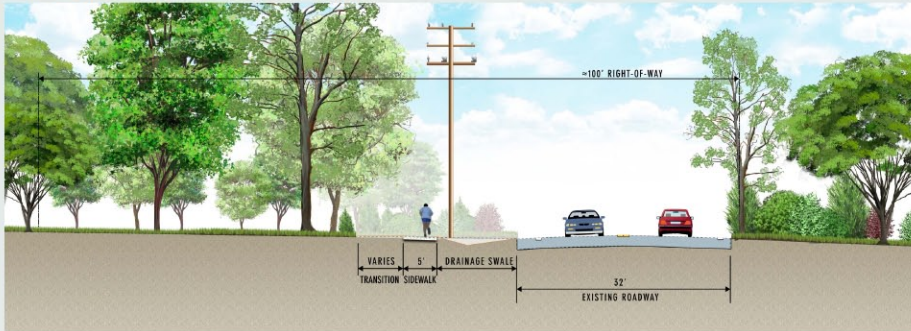
WILSON LANE TO MCLEAN DRIVE



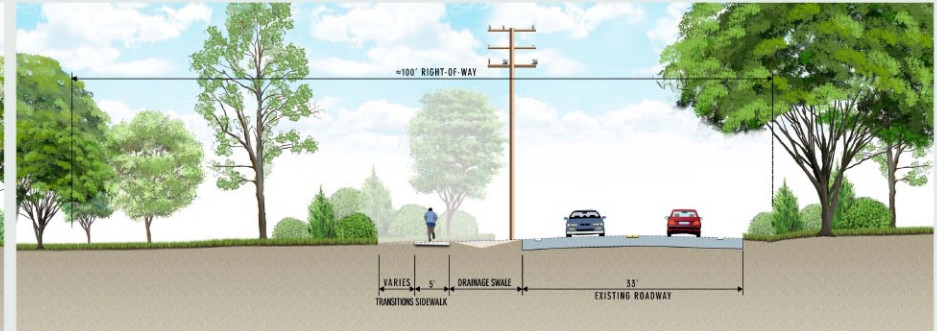
BRITE DRIVE TO AUDUBON ROAD



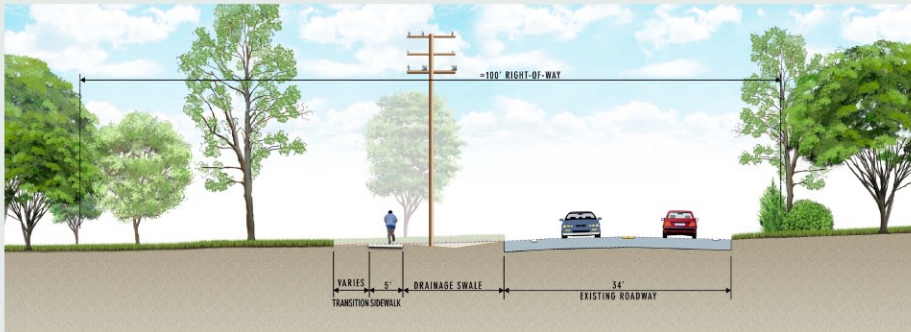
MCLEAN DRIVE TO DURBIN ROAD



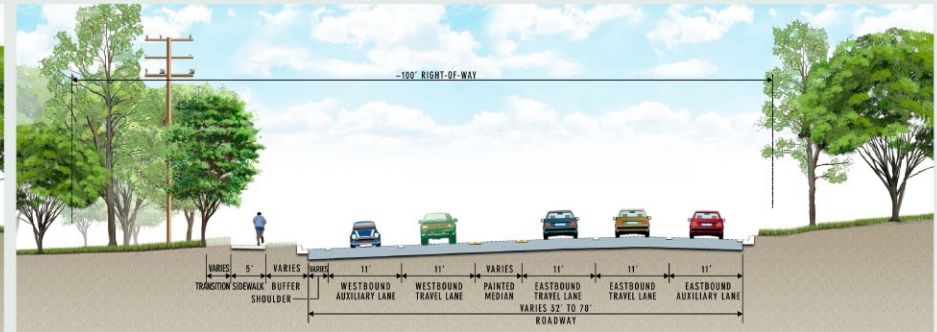
AUDUBON ROAD TO BARRETT LANE



DURBIN ROAD TO BRITE DRIVE



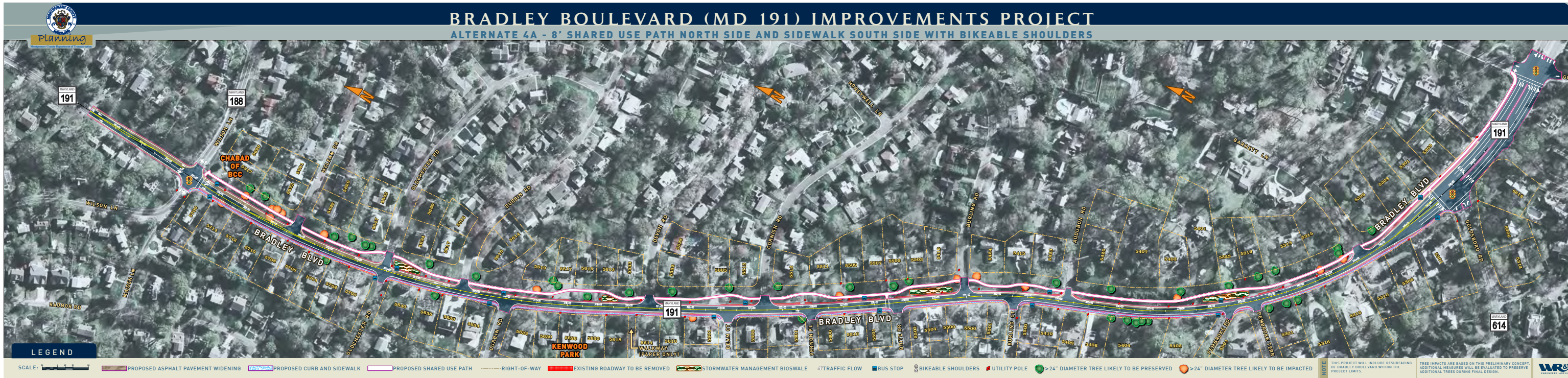
BARRETT LANE TO GOLDSBORO ROAD

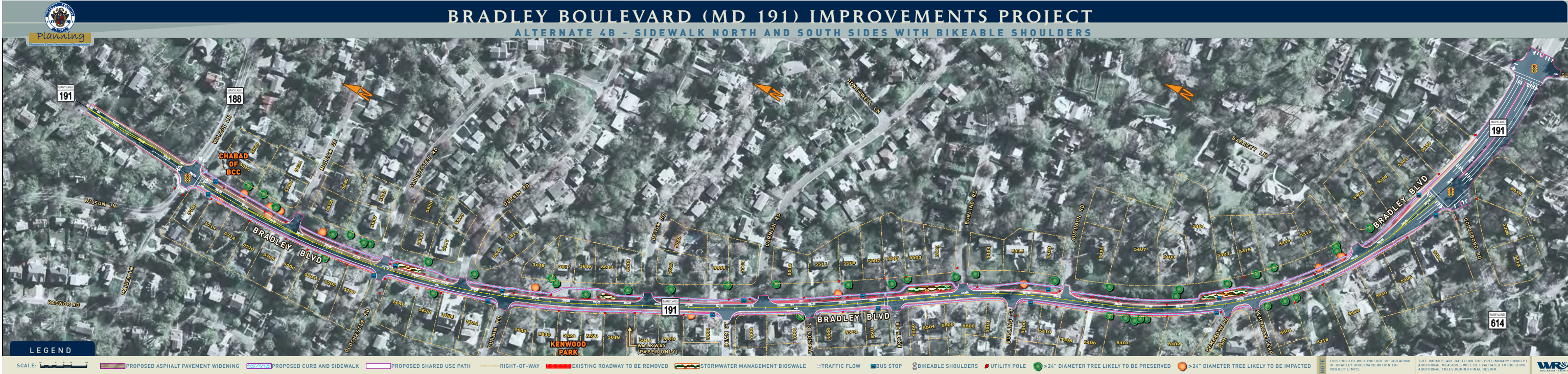


LEGEND

Existing Roadway Shared Use Path or Sidewalk Proposed Full Depth Pavement Construction Existing to be Removed







**BRADLEY BOULEVARD
LOOKING WEST TO WILSON LANE**

EXISTING



PROPOSED ALTERNATE 4A



These are Artistic Renderings, may not represent Final Design

**BRADLEY BOULEVARD
LOOKING EAST FROM WILSON LANE**

EXISTING



PROPOSED ALTERNATE 4A



These are Artistic Renderings, may not represent Final Design

**BRADLEY BOULEVARD
LOOKING EAST FROM DURBIN ROAD**

EXISTING



PROPOSED ALTERNATE 4A



These are Artistic Renderings, may not represent Final Design

**BRADLEY BOULEVARD
LOOKING WEST FROM DEVON ROAD**

EXISTING



PROPOSED ALTERNATE 4A



These are Artistic Renderings, may not represent Final Design

**BRADLEY BOULEVARD
LOOKING WEST FROM PEMBROKE ROAD**

EXISTING



PROPOSED ALTERNATE 4A



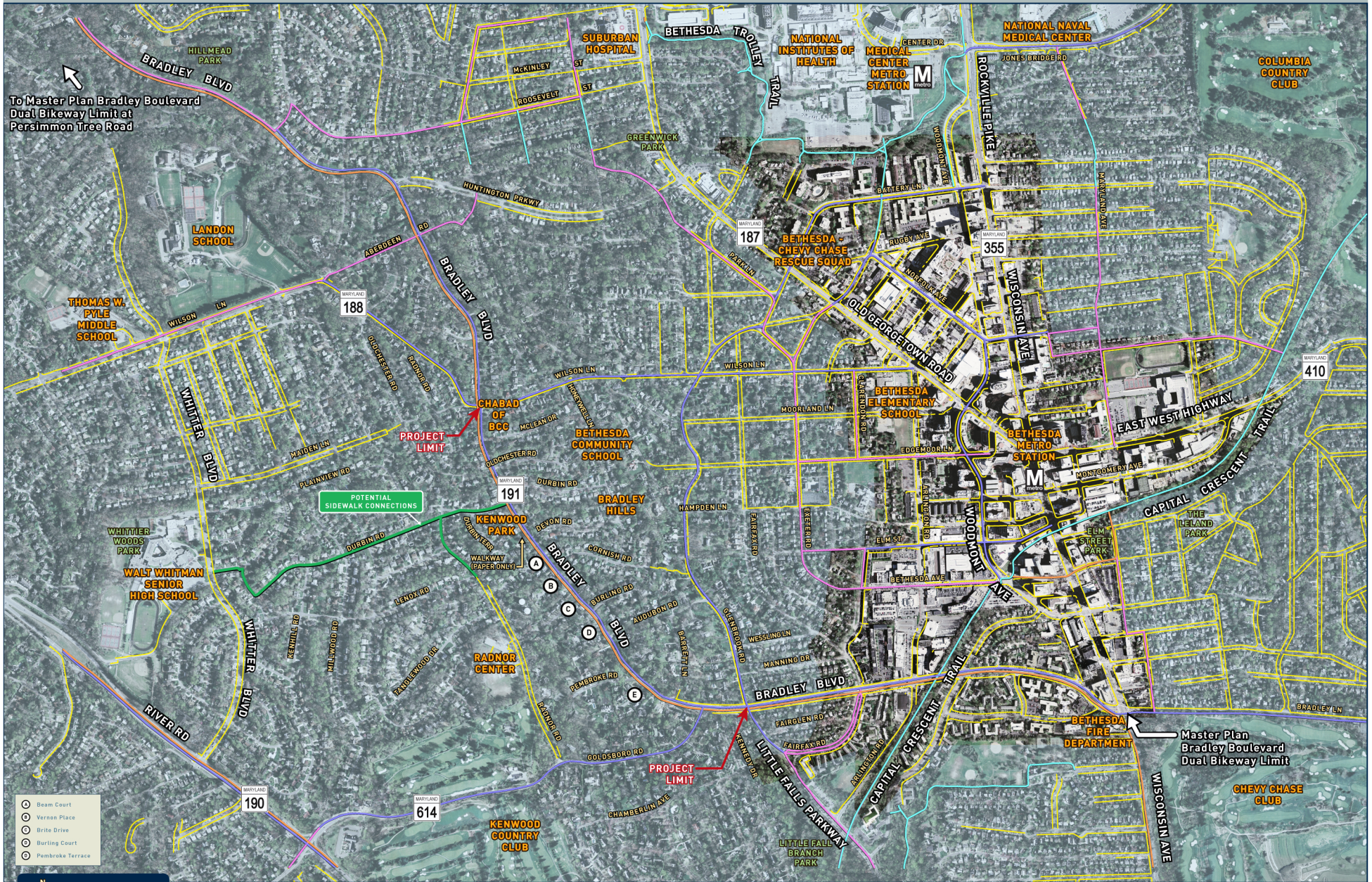
These are Artistic Renderings, may not represent Final Design



Planning
Maryland Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

BIKEWAY AND SIDEWALK CONNECTIVITY



SCALE: 1" = 100'

Existing Sidewalks
Existing Shared Roadway/Bike Lanes
Proposed Shared Use Path
Proposed Shared Roadway/Bike Lanes
Potential Sidewalk Connections

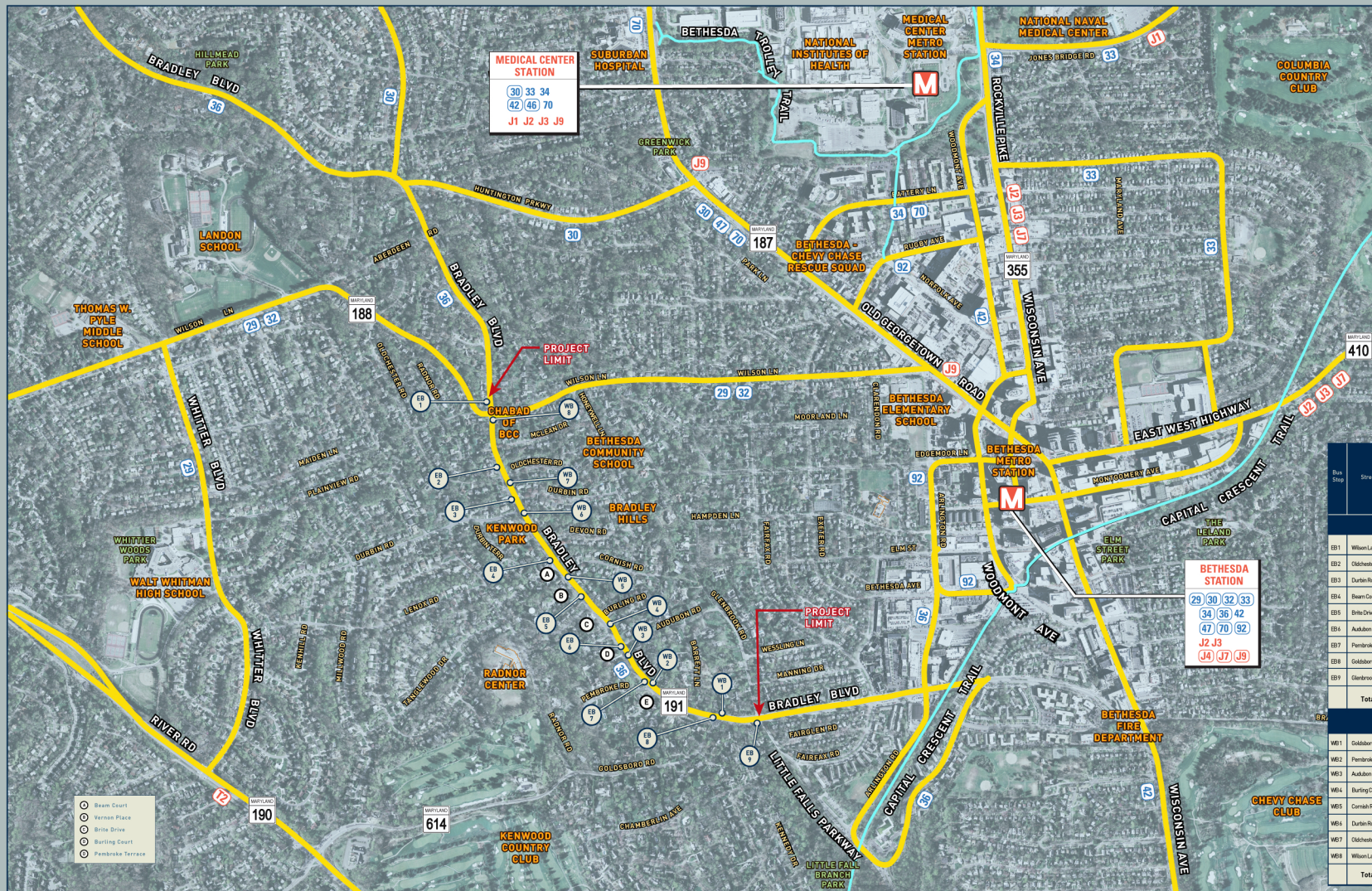
Bethesda Central Business District

WRA WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS • ARCHITECTS • PLANNERS 137-1910



BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

PUBLIC TRANSPORTATION



Bus Stop	Streets	AM 6:55AM-8:55AM		MID-DAY 8:55AM-3:56 PM		PM 3:57PM-6:56 PM		NIGHT After 6:57PM		TOTAL
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	
		Route 36 Eastbound FY09 Weekday								
EB1	Wilson Lane	0	0	0	3	0	0	0	0	3
EB2	Oldchester Road	1	0	1	0	0	0	0	0	2
EB3	Durbin Road	4	0	2	0	1	0	0	0	9
EB4	Brite Court	2	0	0	0	0	0	0	0	2
EB5	Brite Drive	4	0	4	1	4	0	0	0	14
EB6	Audubon Road	2	0	0	0	2	0	0	0	4
EB7	Pembroke Road	0	0	0	0	0	0	0	0	0
EB8	Goldens Road	0	0	1	1	0	0	0	0	1
EB9	Glenbrook Road	2	0	2	0	1	0	0	0	5
Total		19	0	12	5	8	0	0	0	39
Route 36 Westbound FY09 Weekday										
WB1	Goldens Road	0	0	0	0	0	0	0	0	0
WB2	Pembroke Road	0	0	0	1	0	0	0	0	1
WB3	Audubon Road	0	4	1	2	0	4	0	2	14
WB4	Burling Court	0	2	0	1	0	4	0	0	7
WB5	Cornell Road	0	0	0	0	4	0	0	0	4
WB6	Durbin Road	0	2	0	3	0	3	0	1	9
WB7	Oldchester Road	0	0	0	0	0	2	0	0	2
WB8	Wilson Lane	0	3	1	1	0	1	0	0	5
Total		0	13	2	8	0	18	0	3	42



Planning
Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD191) IMPROVEMENTS PROJECT

PHOTO MONTAGE



SCALE: 1" = 100'



Planning
Prince George's County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

PRECEDENT IMAGES

Typical Shared Use Path / Streetscape Plantings



Typical Bioswale



MD 190, Potomac MD

Frederick County, MD

Anne Arundel County, MD

Frederick County, MD

Typical Bioswale Plantings



Typical Shared Use Path



12' Shared Use Path

10' Shared Use Path, MD28

10' Shared Use Path, MD28 Norbeck Rd. MD

10' Shared Use Path, MD28 Norbeck Rd. MD

12' Shared Use Path

8' Shared Use Path, MD28 Norbeck Rd. MD

10' Shared Use Path



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Urban Design Planning
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& ASSOCIATES, LLP
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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

IMPACT ANALYSIS

	Alternate 1	Alternate 2	Alternate 3	Alternate 4A	Alternate 4B	Alternate 4C
	No-Build	Master Plan	Enhanced Master Plan	8' Shared Use Path North Side and Sidewalk South Side with Bikeable Shoulders	Sidewalk North and South Sides with Bikeable Shoulders	Sidewalk North Side only with Bikeable Shoulders
> 30" Diameter Trees Impacts	0	1 - 4	3 - 6	3 - 4	2 - 4	2 - 3
24" to 30" Diameter Trees Impacts	0	5 - 12	5 - 13	7 - 12	5 - 8	5 - 8
18" to 24" Diameter Trees Impacts	0	10 - 26	16 - 30	19 - 24	12 - 24	10 - 15
< 18" Diameter Trees Impacts	0	32 - 87	31 - 104	57 - 114	43 - 75	43 - 54
Utility Poles Relocated	0	6	27	7	7	4
Disturbed Area (Acres)	0	3.8	4.3	4.9	3.7	2.7
Impervious Area (Acres)	6.5	6.9	7.5	7.2	6.9	6.9

NOTE: *The low range of tree impacts is for trees directly in the proposed roadway, drainage improvements, sidewalk or shared use path. The high range is for trees directly impacted plus those where the improvements cover a significant portion of their root zones.*

November 10, 2010
Public Participaton Materials

HANDOUTS

FAQs

Bioswales



Frequently Asked Questions (FAQ) About The Bradley Boulevard Improvements Project

Question 1: Does the project add additional pavement and additional lanes to Bradley Boulevard?

Response 1: The existing pavement width currently varies from 30' to 40'. This project is not proposing to add lanes but is proposing to make this section of Bradley Boulevard a constant roadway section with fixed width bikeable shoulders. The number and width of travel lanes will be two (2) 11' lanes. The typical section being proposed by the study team is 31' and all alternatives are removing some pavement as part of the construction. The intent and goals of the alternatives are to standardize the shoulder width to make it safer for all users and include pedestrian/cyclist improvements.

Question 2: Does the addition of a shared use path make it difficult for homeowners to cross while entering and exiting the roadway?

Response 2: Whether the alternatives include a shared use path or a sidewalk, pedestrian and vehicular interaction will occur with any pedestrian improvements throughout the corridor. This interaction is no different from any other driveway or roadway entrance that crosses a sidewalk to enter the flow of traffic. Throughout the design of the project, the study team will be evaluating sight distances and vehicular/pedestrian movements from side streets and residences to ensure safety for all users.

Question 3: How did the County get to these large alternative typical sections when all that the original neighborhood petition asked for was a sidewalk along Bradley Boulevard?

Response 3: Local area master plans are used as the basis for beginning all transportation planning projects. The *1990 Approved and Adopted Bethesda Chevy Chase Master Plan* and the *2005 Countywide Bikeways Functional Master Plan* recommend pedestrian connections and a dual bikeway with both an Off Road Shared Use Path and On Road Signed Shared Roadway along Bradley Boulevard. The study team uses these Master Plan documents as the guiding principle to develop the preliminary alternatives. These documents were developed through many working groups and public meetings as visions and guidelines for how various areas should proceed with future planning to meet the community's needs.

Question 4: Where is the demand for this project as there are very few bicyclists and pedestrians who use this corridor?

Response 4: The Technical Study Team has witnessed many bicyclists using this corridor during various site visits. The Study Team has received many concerns from pedestrians and cyclists who use the corridor today and see a need for increased safety improvements. The intent and goals of the alternatives are to standardize the shoulder width to make it safer for all users and include pedestrian/cyclist improvements. A study of the pedestrian network in this area indicates significant gaps in the sidewalk/bikeway connections in this section of Bradley Boulevard, especially the missing link between the sidewalk along Wilson Lane and the sidewalks along Bradley Boulevard that end near Goldsboro Road.

Question 5: Why must a shared use path be installed? There are existing sidewalks and paths in the area that are sufficient for pedestrians and recreational cyclists. The proposed shared use path will attract commuter cyclists making it unsafe for less experienced recreational cyclists, joggers and pedestrians.

Response 5: The local area master plans call for a dual bikeway along Bradley Boulevard. A Dual Bikeway features both an Off-Road Shared Use Path and an On-Road Shared Signed Roadway. Experienced bicyclists will follow the on-road bike lanes and will stay off the off-road shared use path to avoid conflicts, meandering routes, and other constraints that will impede their commute. The shared use path will attract recreational bicyclists and pedestrians. Sidewalks must be a minimum of 5' wide to comply with ADA requirements. Guidelines recommend shared use paths be a minimum of 8' wide to allow safe passage of two bicycle riders past one another. Maryland State Law prohibits the use of bicycles on sidewalks except where allowed by local ordinance (Maryland Code, Title 21, Section 21-1103). The local ordinance, in this case, allows bicycling on sidewalks. In accordance with the Master Plans, the study team recommends a shared use path, however alternatives have been developed to evaluate the addition of a sidewalk in lieu of a shared use path at this time.

Question 6: Why are no storm drain inlets with curb and gutter proposed along most of the section of Bradley under review?

Response 6: The Technical Study Team considers the ditch and bioswale drainage system planned for the north side of the road to be the most effective system for controlling runoff from Bradley Boulevard and the residential lots to the north while meeting the project's regulatory stormwater management requirements. Current stormwater regulation requires the use of Environmental Site Design (ESD) techniques that treat stormwater runoff with vegetative practices that improve water quality and reduce the overall volume of stormwater being conveyed to storm drain systems. By conveying stormwater through bioswales, water velocity is slowed by the vegetation and amended soils underlying the bioswale which allows more water to infiltrate and recharge groundwater. Other best practices may be introduced during the detailed design phase.

Question 7: If a proposed shared use path or sidewalk is built, who will be required to maintain and remove snow from these facilities?

Response 7: MCDOT will perform all required maintenance of the sidewalk or shared use path except for snow removal. Abutting property owners are required by law to clear snow for a minimum 4' width clearance within 24 hours of the end of a snowfall event.

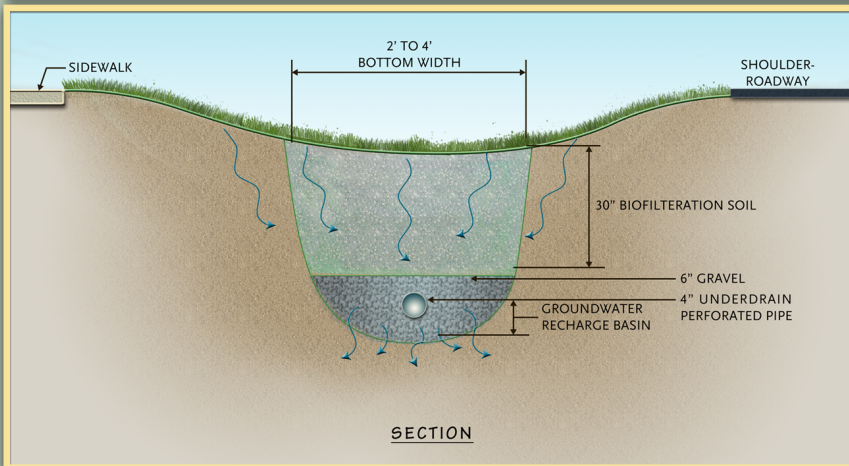
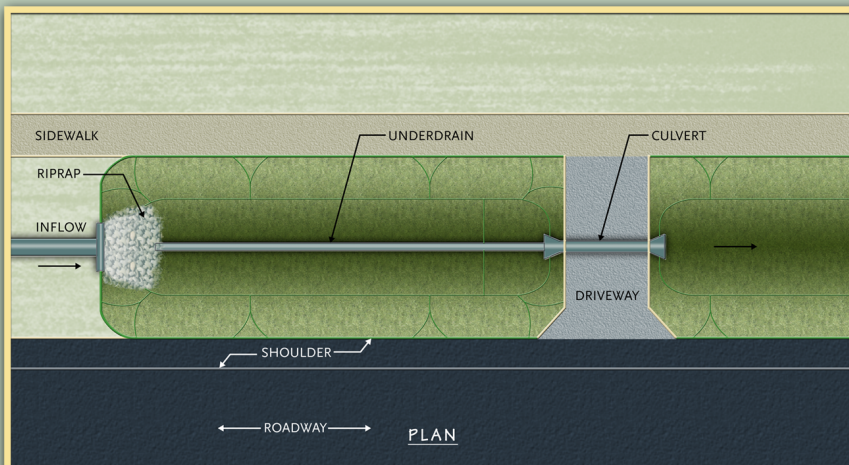
Question 8: It does not appear that the project addresses the difficulty for pedestrians to cross Bradley Boulevard between the signalized intersections?

Response 8: The study team has examined improving pedestrian crossings of Bradley Boulevard. Based on public feedback potential crossing locations with pedestrian refuge islands have been evaluated at Brite Drive, Devon Road, and Durbin Road. These potential crossing locations will have to be reviewed and approved by SHA and Montgomery County's Division of Traffic Engineering and Operations. The Technical Study Team will continue to evaluate these safety concerns throughout the design process and will continue to coordinate with appropriate State and County agencies.

Question 9: What is going to be done to minimize impacts to a large number of existing mature trees and landscaping/property along Bradley Boulevard?

Response 9: MCDOT strives to meet the many challenges of balancing the planning and design of a safe and efficient transportation system for all users while considering the specific needs of the local residents as well as of the community at large. We understand that some of the residents have direct frontage along Bradley Boulevard, and may have one viewpoint different from those of others who live further away. Efforts will be made in the planning and engineering phases to further minimize impacts within the Bradley Boulevard right of way while addressing the challenge of retrofitting improvements in an established and mature setting.

BIOSWALES



- Designed to remove silt and pollutants from surface run-off water
- Appearance is similar to a grass-lined ditch

BRADLEY BOULEVARD IMPROVEMENTS PUBLIC MEETING

Thomas W. Pyle Middle School
6311 Wilson Lane Bethesda, MD 20817
Tuesday: March 2, 2010
7:00 – 9:00 PM

Bradley Boulevard Traffic and Crash Data

The current ADT (Average Daily Traffic) of this section of Bradley Boulevard is **15,462** vehicles.

The following accident rates are per 100 million vehicle miles of travel (acc/100mvm) and compare this section of Bradley Boulevard with weighted statewide average accident rates for all similarly designed highways under state maintenance.

Accident Type	Bradley Boulevard Rate	Statewide Average Rate	Comments
Fatal	0	1.4	
Injury	118.4	78.5	Significantly higher than the statewide average
Property Damage	131.6	110.7	
Total	250	190.7	Significantly higher than the statewide average
Opposite Direction	13.2	11.8	
Rear End	74.6	59.5	
Sideswipe	0	10.3	
Left Turn	61.4	14.7	Significantly higher than the statewide average
Angle	30.7	35.4	
Pedestrian and Bicycle	17.5	4.9	Significantly higher than the statewide average
Parked Vehicle	0	6.4	
Fixed Object	35.1	28.5	
Other	17.5	11.1	



Planning

Montgomery County Department of Transportation

MCDOT Wants Your Feedback

The MCDOT encourages you to provide your concerns on the postage-paid Public Comments Form included with this newsletter. If you have access to the internet, you may e-mail your comments directly to the project manager at:

patricia.shepherd@montgomerycountymd.gov

Your input is important, it allows Montgomery County Department of Transportation (MCDOT), decision makers and elected officials to understand the concerns of the community. Your comments become a part of public records and may be included and/or summarized in the Bradley Boulevard Improvements Project Prospectus. Due to the high volume of comments we receive, we regret that we may be unable to respond to each inquiry. MCDOT assures you that all comments will be read and evaluated.



Planning

Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

APPENDIX C

Public Comments



Bradley Boulevard (MD 191) Improvements Project
Public Comments
October 27, 2009 Public Meeting

Received By	Topic	Comment/Question
Verbal	Traffic - General Design	A heavy westbound u-turn at Goldsboro Road could introduce a conflict with the potential right turn overlap phase (RTOP) for Goldsboro Road. Also a concern was discussed that with a RTOP at Goldsboro, gaps in traffic would be prevented that currently allow some people to exit their driveways or from Kennedy Drive. Finally, several bicyclists expressed concern about a lack of gaps in vehicular traffic flow on eastbound Bradley Boulevard for bicyclists crossing Bradley Boulevard between Kennedy Drive and Glenbrook Road with a RTOP.
Verbal	Highway - Design	Question about curbing only on North side. Why is it limited to one side?
Verbal	Traffic - General Design	The team should evaluate and consider adding more crosswalks.
Verbal	Traffic - General Design	Cornish Road currently is used by residents to get to the central business district. The team should consider a crosswalk at this location.
Verbal	Engineering - Alternatives	How can residents recommend alternate 1? The team indicated community comments will influence technical design team final report.
Verbal	Engineering - Alternatives	Residents shouldn't dismiss the need for a path. There is demand for connectivity. You can't judge the demand based on today's usage.
Verbal	Maintenance	Who is responsible for maintaining the shared-use path? How are snow-removal and structural problem (e.g. pavement cracking) responsibilities delegated? Aruna Miller will investigate snow removal responsibility.
Verbal	Engineering - Alternatives	The team should consider a hybrid alternate combining elements of Alternates 1 and 2. Keep the sidewalk on the south side (from Alternate 3), along with a 10'-wide shared-use path and 4'-wide bike lanes (from Alternate 2).
Verbal	Traffic - General Design	The major pedestrian crossing points are at Brite Drive and Durbin Road. Many of the domestic workers who serve the community travel to/from the study area by bus and utilize the stop at Durbin Road. The team should consider safer crosswalks. The team asked the residents to send in recommendations and suggestions for crosswalks.
Verbal	Traffic - General Design	The team should consider a roundabout at the Bradley Boulevard at Goldsboro Road intersection.
Verbal	Traffic - General Design	The team should consider different methods of forcing northbound right-turning motorists from Goldsboro Road to come to a complete stop before completing their turn, such as a physically-defined tighter turning radius or re-aligning Goldsboro Road so that it intersects Bradley Boulevard at a more perpendicular angle.
Verbal	Engineering - Alternatives	Question if county master plan is consistent with State's intent for road? Will widening of road happen and be dictated by state. Question of why is county improving a state road. The team indicated that reason for project is cyclist compatibility and state does not generally address such issues unless a larger widening/improvement project is proposed. No widening is proposed. Concern expressed that enhanced plan sets the stage for a widening project by the state. County master plan states that Bradley is to remain two lanes in project area.
Verbal	Engineering - Alternatives	Request to extend cyclist improvements to that recommended in master plan up to Persimmon Tree Road. Attendees encourage to write to Director of DOT to suggest adding extended cyclist improvements to Persimmon Tree Road and Glenbrook to facility planning program.
Verbal	Highway - Design	The team indicated that minimum width of a sidewalk is 5' and when next to a curb 7'. Minimum width of a shared use path is 8' to accommodate pedestrians and other recreational users.
Verbal	Engineering - Alternatives	Inquiry of why project is only ½ miles long and relatively insignificant in providing connectivity for cyclists. The team indicated that this is the first phase of a dual bikeway project from Persimmon Tree Road to Wisconsin Avenue.
Verbal	Engineering - Alternatives	Request for planning department to meet with various community groups. The team indicated that it is possible and to make the request through the department.
Verbal	Engineering - Alternatives	Example of 8' wide path installed at NIH was initially opposed because of no need perceived. Later installed and is now very popular.
Verbal	Traffic - General Design	Suggestion to read Tom Freidman Hot, Flat, and Crowded" for suggestions about connectivity and need for access in safe manners.
Verbal	Traffic - General Design	Adding left turn lanes at Wilson Lane would help traffic but would prevent gaps in traffic that some residents currently use to exit their driveways. The team should consider left turn signals at this intersection.
Verbal	Engineering - Alternatives	The team should keep in mind other means of transportation along the corridor such as baby strollers.
Verbal	Project - General	A water main project will occur along Bradley Boulevard.
Verbal	Engineering - Alternatives	The team should consider a sidewalk for the north side of the road rather than a shared use path. The original neighborhood petition was for pedestrian improvements. Alternates 2 and 3 are not what the public intended when saying that they wanted pedestrian improvements. These alternates have too much hardscape and the shared-use path is too wide. Concern over extensive nature of increased paving as part of alternates and adverse impact on character of street.
Verbal	Highway - Design	The team is encouraged to lengthen the project to Glenbrook.
Verbal	Engineering - Alternatives	It seems counter-intuitive to provide a 12'-wide shared-use path in Alternate 3, which includes a sidewalk on the south side of Bradley Boulevard. It seems that the shared-use path could be the same width or narrower than the 10' width in Alternate 2.

Bradley Boulevard (MD 191) Improvements Project
Public Comments
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Received By	Topic	Comment/Question
Verbal	Traffic - General Design	There was concern about needing crosswalks at bus stops. Inquiry on whether pedestrian patterns were studies. Study may not reflect desired movement, since many may be afraid to walk in area.
Verbal	Drainage - Design	There are serious flooding concerns at property #5315 during a storm event.
Verbal	Traffic - General Design	The team should consider pedestrian refuge islands wherever possible.
Verbal	Traffic - General Design	Concern over motorist getting in and out of driveways having to cross a bike lane and shared use path. Are stop signs possible? The team indicated that stop signs at cross streets may be possible, but not at each driveway. The team indicated that path alignment and width is to be designed to make users aware of crossing points and slow them down.
Verbal	Project - General	Request that improvements be coordinated with various agencies- State, utilities, etc.
Verbal	Project - General	Request to review sidewalk on Glenbrook for precedent for pathway.
Verbal	Landscape	Concern over disturbances to front yards.
Verbal	Highway - Design	Request to continue sidewalk from Goldsboro instead of starting a shared use path.
Verbal	Traffic - General Design	Concern over excessive speeds on Bradley was expressed.
Verbal	Highway - Design	Concern expressed that proposed cross sections will promote increased not decrease speeds and decrease aesthetic quality of trip.
Verbal	Highway - Design	Inquiry of material of path. It is likely to be asphalt which is a standard path material. The county has path maintenance responsibility other than snow removal.
E-mail	Opposed - Safety and Drainage	Resident along this section of Bradley Boulevard is concerned about the high speeds of traffic along the roadway and would prefer steps be taken to try to reduce speeds. He is also concerned with the water that ponds on the roadway and shoulders during rain events and would like the project to make this situation better not worse. He would also like the project to discourage parking along the road and loitering.
E-mail	Opposed - Impacts	Resident along this section of Bradley Boulevard is concerned about the impacts due to the shared use path. She would prefer an alternate with just a sidewalk and not a path.
E-mail	Opposed - Safety and Drainage	Resident along this section of Bradley Boulevard feels that there very little demand for bicyclists and pedestrians on this road. He sees very few pedestrians and cyclists today and feels this project is too expensive to be justified. He is also concerned with the water that ponds on the roadway and flows south from the roadway on to properties during rain events. He also is concerned about the impacts due to the shared use path and feels money could be better spent elsewhere.
E-mail	Opposed - Impacts	Resident along this section of Bradley Boulevard is concerned about the impacts due to the shared use path. She would prefer an alternate with just a sidewalk and not a path.
E-mail	Opposed - Impacts and Expense	Resident along this section of Bradley Boulevard is concerned about the impacts due to the shared use path and the expense in building it. She feels that money could be better spent elsewhere. She also believes the team has not done enough to inform the community about the project.
E-mail	Opposed - Strongly against due to Impacts	Resident along this section of Bradley Boulevard feels that there is very little demand for bicyclists and pedestrians on this road. He feels that there are sufficient options today for pedestrians to get to downtown Bethesda. He is also concerned with the water that ponds on the roadway today and does not believe the drainage swale will solve the problem. He also is concerned about the impacts due to the shared use path and feels money could be better spent elsewhere. He also believes this project is the first step toward building a four lane highway. He is concerned about the increased bicycle traffic making it more difficult to enter and exit the roadway, and the requirement that owners will be required to shovel the shared use path. He would prefer an alternative with a sidewalk only plus an underground drainage system.
E-mail	Support and Pedestrian Safety	Local resident who supports the project in order to make the road safer for bicycling and pedestrian. He would prefer the crosswalk across Bradley at Goldsboro be located on the west side of the intersection for safety and because on the east side it would severely impact his property. He would also like the bike lanes to extend to Glenbrook, but to maintain parking also in this block.
E-mail	Opposed - Impacts	Resident along this section of Bradley Boulevard feels that there very little demand for bicyclists and pedestrians on this road. He sees very few pedestrians and cyclists today. He also is concerned about the impacts due to the shared use path. He is concerned about the increased bicycle traffic making it more difficult to enter and exit the roadway. He also feels as though adding a path would require a zoning change to commercial. He is concerned that is difficult to cross Bradley Boulevard as a pedestrian today and this project would make that worse.
E-mail	Supports both option 2 and 3	Resident along this section of Bradley Blvd who is in support of the project but has some concerns regarding option 3: -proposed sidewalk cuts into his property line -has safety concerns about the proposed crosswalk on Bradley and Goldsboro. Suggest extending bike lane beyond Goldsboro to connect to Capital Crescent Trail and adding pedestrian activated light between Wilson and Goldsboro so everyone, (especially children going to school), can have safe access to cross Bradley Blvd.
E-mail	Opposed - Aesthetics, Loss of mature trees, livability	A local resident who'd rather have a modest sidewalk that stays outside of residential plantings and fences. Concerned that high speed bikes careening through people's yards would be detrimental to the livability and pose threats to kids and pets. Also concerned about the requirement that owners will be required to maintain the shared use path. Further, the resident expressed that all supporters of the bike paths have no interest in maintaining the livability of the neighborhood.
E-mail	Opposed	Resident along this section of Bradley Blvd deems project absurd and believes it could be more of a danger to runners since it will mislead them to think that it's a restricted access path. Wants the funding to be used for other improvements that will benefit the residents more.

Bradley Boulevard (MD 191) Improvements Project
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Received By	Topic	Comment/Question
E-mail	Opposed - Safety, simplicity & aesthetics	Local residents who request that the project be limited to the extension of the existing sidewalk and two four-foot bicycle lanes on either side of the roadway. They further believe that pedestrians and recreational bicycle riders can easily share a 5-foot-wide sidewalk with green space on either side.
E-mail	Opposed Against Alt 2 and Atl 3	Resident along this section of Bradley Blvd (since mid 1980's) was pleased to hear about the project but is concerned about safety at intersection of Brite Drive and Bradley Blvd. Feels that wider lanes for bike and ped will increase danger. Wider roads means people will lead drivers to speed. With the addition of bike lanes, drivers will likely use the bike lane for passing traffic. Also was felt that property value will decrease and insurance premium will increase if the project was implemented.
E-mail	Opposed - Inconvenience to cars turning onto Bradley Blv., expense	Local resident concerned about added obstacle to entering the boulevard by car from streets like Cornish Road, between cars speeding in opposite directions and very occasional pedestrians and cyclists. Adding two lanes for people and objects moving at three different speeds might require traffic lights at each cross street. Are there no other alternatives to accommodate pedestrians and bicycle riders without major inconvenience to drivers and excessive expense for the County?
E-mail	Opposed to the proposed sidewalk	Resident along this section of Bradley Blvd feels that the proposed sidewalks are too wide. She wants a five/six foot sidewalk/path now that could later be expanded to include a bike path.
E-mail	Opposed strongly to the project	Resident along this section of Bradley Blvd deems project absurd and believes it could be more of a danger to runners since it will mislead them to think that it's a restricted access path. Wants the funding to be used for other improvements that will benefit the residents more.
E-mail	Opposed strongly	Avid cyclists with deep concerns for tree impacts, traffic closer to property, recent bus stop project would be for nothing, project too short for a significant path. Feels money would be better spent improving existing infrastructure or issues outside of transportation
E-mail	Opposed very strongly	45 year + resident who finds pedestrian traffic does not warrant project and that project length is too small for a worthwhile bike trail, says only several activists petitioned for the project, property owners' landscaping and environmental features would be ruined, dangerous traffic will encroach closer to residences, feels that this is a start of urban creep into the residential community, project not in accord with latest master plan, too expensive for a strained budget, residents have a rightful claim to property. Also took issue with lack of due notice for commenting.
E-mail	Opposed	Bike path would make pulling out of driveway, dangerous for children, and loss of 6 large trees increasing noise pollution
E-mail	Opposed strongly	Project would destroy sources of greenery, add a wide band of asphalt to neighborhood, bikers would still be next to heavy, high speed traffic, danger created when cars using driveways would need to cross path, very little pedestrian use currently, the bike groups promoting plan don't live in area, property values would diminish, notable journalist with many media connections that will be used to fight this
E-mail	Support - Comment update from previous	Takes issue with sidewalk on southwest Bradley. Only supports alternative 2 master plan and alternative 2 section A-A, section B-B
E-mail	Opposed - opposition reiterated	Proposals are out of balance, would be okay with meandering 5' maximum width sidewalk, feels proposal is waste of tax money and destruction of beautiful landscaping. Would like to be informed of future meetings
E-mail	Opposed	Lives on Bradley Blvd. Finds driveway difficult to use already without cyclists, feels that it is unsafe for cyclists to be along Bradley, recently built bus stop waiting areas rarely used and feels this project would be similar, would rather tax money be spent on road improvements
E-mail	Supports mixture of alternatives 2 and 3	Strong support with many recommendations. Would like 6' sidewalk towards the south, 5' bike lanes on both sides, a 10' shared path on the north side, extending project to Glenbrook Road, eliminating merge on WB Bradley at Goldboro, changing county policy on snow removal, crosswalk improvements, ample space between path and road edge, left turn lanes at Wilson, different travel lane widths on Bradley. Recommends bioswale explanations to affected homes, no parking signs for bike lanes, flexible plyons to warn vehicles at pavement edge, converting excess shoulder width to grass, and speed cameras on Bradley
E-mail	Opposed	Feels plan is unnecessary and too costly, prefers No Build. If money was available it would be better spent on more important projects that would benefit more people. Feels trail is inadequate anyway and stops well short of Crescent.
E-mail	Opposed - Appointment	Would like to set up an appointment to review and obtain Bradley Hills project files
E-mail	Opposed	Plan is too elaborate, expensive, and destroys mature trees and character of neighborhood. Thinks engineering company pushed elaborate alternative because of vested interest
E-mail	Support - Bicycle Safety	He is an avid cyclist who supports the project. He feels that the roadway isn't safe enough for cyclists currently. He also makes several other suggestions for improvements in the area for bicycle safety.
E-mail	Support - Bicycle Safety	He is a cyclist who supports the project. He feels that the roadway isn't safe enough for cyclists currently.
E-mail	Support - Bicycle Safety	He is a cyclist who supports the project. He feels that the roadway isn't safe enough for cyclists currently.
E-mail	Support - Bicycle Safety	He is a cyclist who feels that the roadway isn't safe enough for cyclists currently, especially as it is being milled and resurfaced currently. He would also like the bike lanes to extend to Glenbrook.

Bradley Boulevard (MD 191) Improvements Project
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Received By	Topic	Comment/Question
E-mail	Support - Bicycle Safety	He is an avid cyclist who supports the project. He feels that the roadway isn't safe enough for cyclists currently. He also makes several other suggestions for improvements in the area for bicycle safety.
E-mail	Support - Bicycle Safety	He is a cyclist who supports the project. He feels that the roadway isn't safe enough for cyclists currently.
E-mail	Support - Bicycle Safety	He is a cyclist who supports the project.
E-mail	Support - Bicycle Safety	He is a cyclist who supports the project. He feels that the existing shoulders are not consistent enough for cyclists currently. He would also like to ensure safe bicycle conditions during construction.
E-mail	Support	He is a local resident and cyclist who supports the project.
E-mail	Support	Appreciates the public meeting and newsletter.
E-mail	Support - Bicycle Safety	She is a commuting cyclist who supports the project. She feels that the roadway isn't safe enough for cyclists currently, especially drivers who encroach or park on the shoulder. She would like some type of separator between roadway and path such as a curb or reflective posts.
E-mail	Support - Pedestrian Safety	Nearby resident who jogs and bicycles in the area including along Bradley Boulevard. He was hit by a car when jogging along the study section of Bradley Boulevard, not injured. He is in favor of the project.
E-mail	Opposed - Impacts	Resident along this section of Bradley Boulevard is concerned about the impacts due to the shared use path. He states that the original community petition called for a sidewalk. He is concerned about the increased bicycle traffic making it more difficult to enter and exit the roadway, he is concerned about property values, and the requirement that owners will be required to shovel the shared use path.
E-mail	Support - Bicycle and Pedestrian Safety	Local residents who supports the project. They feel that the roadway isn't safe enough for cyclists and pedestrians currently. They have a particular concern with low lighting of the roadway.
E-mail	Support - Bicycle Safety	They are avid cyclists who support the project.
E-mail	Other - Bike Racks	The MCDOT Transit Services has 24 bike racks in stock.
E-mail	Support - Pedestrian Safety	The Sacks neighborhood association prefers bike lanes with a sidewalk and no path.
E-mail	Support	The Bradley Hill Civic Association would prefer alternate 2. They would prefer to include a sidewalk instead of a path or if a path than only 8'. They would also like the team to consider crosswalks, including one at Durbin Road. They would also like the bike lanes to extend to Glenbrook.
E-mail	Opposed - Expense	Non-area resident who believes the project is a poor use of taxpayer money.
E-mail	Opposed - Safety and Maintenance	Resident along this section of Bradley Boulevard is concerned about the loss of the woods in the SHA right-of-way. She is also concerned with increased bicycle traffic on the path being dangerous for pedestrians. She would prefer an alternate with just a sidewalk and not a path.
E-mail	Support - Strong Support, bicycle and pedestrian safety	Resident along this section of Bradley Boulevard who supports the project in order to encourage bicycling and pedestrian usage of the road. He feels that the roadway isn't safe enough for cyclists currently. He points out that the Capital Crescent Trail started out short in length and was popular then. It has become more popular as it has grown. He especially supports alternate 3 with a sidewalk also on the south side. He would also like the bike lanes to extend to Glenbrook. He also makes several other suggestions for minor improvements in the area to improve pedestrian and bicycle access to downtown Bethesda.
E-mail	Opposed - Impacts	Resident along this section of Bradley Boulevard is concerned about the impacts due to the shared use path and the expense in building it. She feels that money could be better spent elsewhere, including maintaining the existing roadway better. She is concerned about the increased bicycle traffic making it more difficult to enter and exit the roadway, she is concerned about the safety of users especially children on the shared use path, and the requirement that owners will be required to shovel the shared use path.
E-mail	Support	Local resident who supports the project in order to encourage bicycling and pedestrian usage of the road.
E-mail	Opposed - Project Expense and Usefulness	Resident along this section of Bradley Boulevard is concerned about the expense and long-term maintenance of a bike path. She cites the MacArthur Boulevard bike path as an example of one that bikers ignore while using the roadway instead. She is concerned about the long time that would be required to complete the master plan for this path and would prefer the money be spent to improve existing bicycle routes and paths.
E-mail	Support, bicycle and pedestrian safety	Resident along this section of Bradley Boulevard who supports the project in order to encourage bicycling and pedestrian usage of the road and to reduce vehicle trips. He feels that the roadway isn't safe enough for cyclists currently. He also believes property values will benefit from the project.
E-mail	Support - Strong Support, bicycle and pedestrian safety	Resident along this section of Bradley Boulevard who supports the project in order to encourage bicycling and pedestrian usage of the road. He feels that the roadway isn't safe enough for cyclists currently. He points out that the Capital Crescent Trail started out short in length and was popular then. It has become more popular as it has grown. He especially supports alternate 3 with a sidewalk also on the south side. He would also like the bike lanes to extend to Glenbrook. He also makes several other suggestions for minor improvements in the area to improve pedestrian and bicycle access to downtown Bethesda.
E-mail	Support and Bicycle Safety	He is an avid cyclist who supports the project. He feels that the roadway isn't safe enough for cyclists currently and that people choose not to ride who would if the road were safer.

Bradley Boulevard (MD 191) Improvements Project
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Received By	Topic	Comment/Question
E-mail	Support	He is a cyclist who supports the project. He is in seventh grade at Pyle Middle School and bikes to school each day. He also agrees with others suggestions for minor improvements in the area to improve pedestrian and bicycle access to downtown Bethesda.
E-mail	Support and Bicycle Safety	Local resident who supports the project. She feels that the roadway isn't safe enough for cyclists and pedestrians currently, especially children. She also supports the traffic improvements at Wilson and Goldsboro intersections. She also feels that the path along Wilson is too narrow for biking and should be expanded. This shows how a wider path is necessary if it is to support bicycling.
E-mail	Support and Bicycle Safety	Local resident who supports the project in order to encourage bicyling and pedestrian usage of the road. She feels that the roadway isn't safe enough for cyclists and pedestrians currently, especially children.
E-mail	Support	Local resident who supports the project.
E-mail	Support - Bicycle Safety	He is a cyclist who supports the project. He feels that the roadway isn't safe enough for cyclists currently. He would also like the bike lanes to extend to Glenbrook to the east and Avenel to the west.
E-mail	Support - Strong Support, bicycle and pedestrian safety	Resident along this section of Bradley Boulevard who supports the project in order to encourage bicyling and pedestrian usage of the road. He feels that the roadway isn't safe enough for cyclists currently. He points out that the Capital Crescent Trail started out short in length and was popular then. It has become more popular as it has grown. He especially supports alternate 3 with a sidewalk also on the south side. He would also like the bike lanes to extend to Glenbrook. He also makes several other suggestions for minor improvements in the area to improve pedestrian and bicycle access to downtown Bethesda.
E-mail	Support - Bicycle Safety	He is a cyclist who supports the project. He feels that the roadway isn't safe enough for cyclists currently.
E-mail	Support - Bicycle Safety	Local residents who support the project. They feel that the roadway isn't safe enough for cyclists and pedestrians currently. They have a particular concern with low lighting of the roadway. They would also like the bike lanes to extend to Glenbrook.
E-mail	Support	She is a local resident who supports the project.
E-mail	Opposed - Voted for Alt 1No build	
E-mail	Supports the project	Local resident bikes and runs along the path. Also uses the route to commute to work, bikes/runs when weather permits. Has safety issues and concerns for the current condition.
E-mail	Support	Just became aware of the project and is agreeable.
E-mail	Support strongly	Cycling commuter in strong support, would like to see project extended from Wilson to Huntington and beyond Goldsboro until Arlington Blvd
E-mail	Supports strongly the project and believe Option 3 is the best solution	Local residents favors the project because of the long term benefits and the minimum impact on existing mature trees. She wants the project to be extended to Huntington Parkway to connect to Capital Crescent Trail. Offers following suggestion to encourage usage: improve crosswalk at Brite Drive, improvements on Cornish Road, pave Elm/Exfair, convert Elm Street between Arlington & Woodmont and Bethesda Avenue between Woodmont & Arlington to one way with dedicated bike lanes.
E-mail	Supports strongly the project and believe Option 3 is the best solution	Local residents favors the project because of the long term benefits and the minimum impact on existing mature trees. He wants the project to be extended beyond Bradley/Goldsboro so the proposed path could be connected to the existing Capital Crescent Trail. Offers following suggestion to encourage usage: improve crosswalk at Brite Drive, improvements on Cornish Road, pave Elm/Exfair, convert Elm Street between Arlington & Woodmont and Bethesda Avenue between Woodmont & Arlington to one way with dedicated bike lanes.
E-mail	supports enthusiastically, need to provide a complete, seamless system	Avid bikers who enjoy biking down through Bannockburn to the Glen Echo post office, thence along the MacArthur Road bike path to Sangamore and then up the Capital Crescent Trail to Kenwood, but there is unfortunately no safe onward leg home whatever, along either River Road or Bradley Boulevard. Also suggests that it (bike paths) be extended all the way to Little Falls Parkway to complete the final connection for the pleasant neighborhood circuit.
E-mail	Supports strongly the project and believe Option 3 is the best solution	Local residents favors the project because of the long term benefits, solution to the flooding issues and the minimum impact on existing mature trees. She wants the project to be extended beyond Bradley/Goldsboro. Offers following suggestion to encourage usage: improve crosswalk at Brite Drive, improvements on Cornish Road, pave Elm/Exfair, convert Elm Street between Arlington & Woodmont and Bethesda Avenue between Woodmont & Arlington to one way with dedicated bike lanes.
E-mail	Supports strongly the project and believe Option 3 is the best solution	Local residents favors the project because of the long term benefits, solution to the flooding issues and the minimum impact on existing mature trees. He wants the project to be extended beyond Bradley/Goldsboro. Offers following suggestion to encourage usage: improve crosswalk at Brite Drive, improvements on Cornish Road, pave Elm/Exfair, convert Elm Street between Arlington & Woodmont and Bethesda Avenue between Woodmont & Arlington to one way with dedicated bike lanes.
E-mail	Opposed strongly - Expense	Strong opposition. No specific reason provided.
E-mail	Support	Local resident in support of the project. Currently she bikes from home often but says that she will more likely bike than drive if the paths were improved allowing for safer and easier use.
E-mail	Support and Bicycle Safety	He is a cyclist who supports the project which he feels is a major safety improvement and likely to encourage more bicycle travel, thereby reducing dependence on fossil fuels and carbon emissions. He further supports extending the bike lanes beyond Goldsboro Rd. to Glenbrook Rd, which is a major access point for the Crescent trail.

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E-mail	Opposed to the project	Local resident feels that the project will not help with the current traffic congestions and safety issues and make the situation worst. Concerned about the maintenance and liability if this project was implemented.
E-mail	Supports strongly for current plan and studies	Local resident bikes 3-5 times per week to Washington DC.
E-mail	Supports strongly, bicycle and pedestrian safety	Resident supports the project in order to encourage bicycling and pedestrian usage of the road. Feels that the roadway isn't safe enough for cyclists currently. Points out that the Capital Crescent Trail started out short in length and was popular then. It has become more popular as it has grown. Especially supports alternate 3 with a sidewalk also on the south side. Would also like the bike lanes to extend to Glenbrook. Also makes several other suggestions for minor improvements in the area to improve pedestrian and bicycle access to downtown Bethesda.
E-mail	Opposed to the project	Concerned that the widening of the roadway features would make it even more difficult to get to Bradley Blvd from the side streets. In favor of adding a sidewalk but has safety issues with adding a shared path that will include bikers.
E-mail	Supports Option 3	Local resident (didn't attend the Public Meeting) bikes to work in downtown Washington and uses Bradley Blvd. Feels that the proposed bioswales is the only viable option to reduce flooding. Would like the scope of project to extend beyond Bradley/Goldsboro to connect to the other system.
E-mail	Supports enthusiastically	Local residents enthusiastic about the proposed project. They have safety concerns and welcomes any improvements to the area.
E-mail	Opposed - Expense, Neighborhood character, Aesthetics	Local resident who is concerned that the multiple routes along this stretch of road will exacerbate the congested traffic conditions that exist, and make pulling out onto Bradley Boulevard from one of the side streets even more difficult by impairing visibility. Further, the resident is concerned about the loss of mature trees.
E-mail	Opposed	
E-mail		Recommends that the section of roadway between Glenbrook Rd and Goldsboro Rd be modified without including in the Bikeway Project. She proposed roadway markings and signage so there'd be no heavy construction to resolve the issue of turning traffic and thru traffic. She wants crosswalk at the intersection of Bradley Blvd and Cornish so people can get better access to the existing pedestrian path on Elm St. In favor of a 10' width Shared Use Path, addition of sidewalk on the South side of Bradley Blvd and left turn lanes from Bradley onto Wilson.
E-mail	Support	Local resident heard about improvements at his son's soccer game and is in favor of the project. Regular cyclist.
E-mail	Support	Family supports plan so bike safety and usage are increased. Supports neighbor, Mike Katz's ideas to improve path at end of Cornish, and gravel path at Elm/Exfair along with making Bethesda and Elm one-way streets
E-mail	Supports strongly	Prefers Option 3, approves of bioswales to prevent flooding and would appreciate minimization of mature tree impacts
E-mail	Support	Supports bikeway and off-road path. Would like project extended beyond Goldsboro with additional crosswalks on Bradley, a pedestrian light on Brite Road, a straight path between Cornish and Glenbrook, and paved gravel path between Glenbrook and Elm
E-mail	Supports strongly	Would like family to have better walking and biking access to Bethesda. Feels alternative 2 is best with minimal disruptions to mature trees and homeowners. Would like ped crossing at Brite or Durbin, non-automotive traffic to use Cornish to access Edgemoor, improved cut-through path at Cornish, paved path at Elm/Exfair, extend project to Glenbrook
E-mail	Supports strongly	Would like path to extend to Capital Crescent Trail
E-mail	Support of KPCA board	KPCA represents 640 homes and the Board supports the project. Requests that plans minimize cutting any mature trees, a pedestrian crosswalk near Cornish Road or near bus stops crosswalk lights
E-mail	Support	Would like to see this type of project throughout the entire community because it is currently very dangerous to walk around neighborhood
E-mail	Support	15 year resident, occasional commuting cyclist. Currently avoids Bradley due to safety issues. Would like another light between Wilson and Goldsboro. Supports option 2
E-mail	Supports strongly Alternative 2	Would strongly support extension to Fernwood. Finds current congestion irritating and likes the idea of Wilson Lane intersection improvements. Suggests to use porous concrete for trail, do not encroach further to west due to house and tree proximities, show comprehensive tree plan (finds flaws with 24" and larger system), and budget for more tree plantings
E-mail	Opposed to proposed scope of work	A resident for 38 years who appreciates the sentiment behind the project, but finds it too far reaching, expensive, and detrimental to the aesthetics
E-mail	Opposed - Traffic safety	Opposed to project unless county can ensure and enforce safe driving. Have seen bikers hit, neighbor killed, and many accidents therefore emphasize safety
E-mail	Supports strongly, resurfacing issues	Daily cycling commuter to DC in strong support. Recent resurfacing and striping was done quite sloppily and shrunk previously existing bike lanes. Would like them returned to old positions
E-mail	Supports strongly	Occasional cyclist who would like to see trail to improve safety and access to Crescent trail
E-mail	Supports enthusiastically	Lives near intersection of Wilson and Bradley. Frustrated that Bradley currently does not accommodate pedestrian trips to downtown Bethesda. Would like sidewalks on both sides of street

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E-mail	Supports enthusiastically	Likes both option 2 and 3 as long as mature tree impact is minimized. Member of IBM's Smarter Planet campaign who believes proposed project relates to this campaign
E-mail	Opposed	Widening the road would decrease livability and be dangerous, doesn't like encroaching commercial sprawl, feels existing bike lanes in area are suitable
E-mail	Support	Believes Option 3 is best and would like to see project extended to Glenbrook Road and include a crosswalk at Brite Drive with a pedestrian activated light, encourage non-automotive traffic to use Cornish/Burling to access Edgemoor, a straighter path at end of Cornish, paving of the gravel path at Elm/Exfair, conversion of Elm between Arlington and Woodmont into a one-way street with a bike lane, conversion of Bethesda Ave. into one-way with bike lane
E-mail	Support	Avid cyclist who believes project would improve quality of life and safety. Would like to see project extended and replicated throughout area
E-mail	Support	Cyclist who believes such a project is long overdue along all of Bradley
E-mail	Supports strongly	Lives near Bradley and Huntington Pkwy and would like the bike path to extend to them
E-mail	Support	Commutes on bike to DC and welcomes efforts to improve cyclist/pedestrian traffic along Bradley Blvd.
E-mail	Supports strongly	Supports either Master or Enhanced Master Plan option. Considers such a project long overdue because current situation is highly dangerous for their children and the community
E-mail	Support	Believes Option 3 is best and would like to see project extended to Glenbrook Road and include a crosswalk at Brite Drive with a pedestrian activated light
E-mail	Support	Believes it is a great idea and would use bike path for commute. Likes the idea of less traffic, safer cycling, and less car generated air pollution
E-mail	Support - Bicycle safety	Supports bike path along Bradley because current conditions are unsafe
E-mail	Supports strongly	The county should consider expanding proposed bike lanes to Glenbrook Road to reach Capitol Crescent Trail
E-mail	Supports a sidewalk plan	Supports an appropriate sidewalk plan and thinks resident opinions should take precedence over bike groups
E-mail	Supports strongly, favors option 3	Cyclist with vigorous support for bike lanes. Wishes to expand scope beyond Goldsboro, encourage non-automotive to use Cornish/Burling to access Edgemoor neighborhood, improve path at end of Cornish, and pave gravel path at Elm/Exfair intersection to Glenbrook
E-mail	Supports strongly - Bicycle Safety	Occasional cyclist who hesitates to ride due to observed safety problems
E-mail	Supports strongly	Huge bike lane supporters willing to help make project happen. Believes project would alleviate traffic congestion and be good for the environment, physical fitness, and community building
E-mail	Supports strongly	Strong support with recommendations to extend scope to Glenbrook Road, add pedestrian light at Brite Drive, encourage non-automotive traffic to use Cornish/Burling Roads, improve path at end of Cornish, pave gravel path from Elm/Exfair intersection, convert Bethesda Avenue heading west to one-way street with bike lane
E-mail	Supports	Supports bikeways to help congestion, public health, and environment
E-mail	Opposed	Response to previous emails. Upset that public was not sufficiently alerted and plays too small a role in planning. Feels project is being pushed through by special interest groups
E-mail	Supports bike path	Citizen in South Bradley Hills neighborhood in support of bike path for safety reasons
E-mail	Opposed	Feels residents weren't included in decision making process and has additional questions
E-mail	Supports	Says that current no-build diagrams exclude peds in drawing. Highlights current safety deficiencies
E-mail	Support	Thinks sidewalk is overdue. Would like an improved Bradley Blvd and would use it regularly
E-mail	Support	Supports project and would like to see maximum non-vehicular usage
E-mail	Supports	Frequent Bradley Blvd. user in support of maximum changes to improve safety and bike access
E-mail	Supports	Supports a minimum of one sidewalk and one bike path along Bradley, on both sides if feasible
E-mail	Support	Avid cyclist who rides to Capital Crescent Trail via Bradley and would like safety improvements. Would like bike lane at least to Glenbrook to the east and Avenel to the west. Feels bike path would take more single passenger vehicles off road
E-mail	Supports	Would like safer bicycling and repaving
E-mail	Supports	Would like bike/walking paths on Bradley
E-mail	Support	Supports bike and foot paths to maximize non-vehicular usage
E-mail	Supports	Very much in favor of bike lane along Bradley
E-mail	Support	In favor of bike/foot paths to see maximum non-vehicular usage
E-mail	Support	Would like sidewalks constructed as soon as possible. Feels that sidewalks are urgent need to promote safety and commuter walking/biking
E-mail	Supports	Lives off of Bradley Blvd. and feels that bike lane and sidewalk are an essential service desperately needed
E-mail	Supports bike path	Bike path would be beneficial to family and community
E-mail	Support	Supports bike and foot paths to maximize non-vehicular usage and cut down on teen drivers
E-mail	Support	Supports the project and would prefer it to extend north to Huntington Parkway
E-mail		Response to previous blog. Does not support the requirement of residents shoveling the entire shared path. However believes the MacArthur Blvd path gets plenty of use, and feels that a path on Bradley would attract bikers off shoulders / travel lanes.
Blog Comment	Support bike path	

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Blog Comment	Opposed	1/3 Response to previous blog, agrees with all opposing reasons.
Blog Comment	Supports bike lane for safety	2/3 Response to previous blog. Believes that current situation is dangerous for pedestrians and bikers, and that the road should be widened with marked bike lanes.
Blog Comment	Support path for safety	3/3 Response to previous blog. Believes the addition of the path will provide safety for children waiting for the bustop, so they do not have to wait so close to traffic. Supports the addition of sidewalk and path because the current inadequacies on Bradley make it difficult and unsafe to walk or bike on.
Blog Comment	Support	1/3 Response to previous blog. Supports the addition of a path rather than an addition travel lane.
Blog Comment	Opposed	2/3 Response to previous blog. Opposes the fact that the path is only 1/2 miles long and spills out onto Goldboro and leaves cyclist and walkers no where else to go.
Blog Comment	Supports path	3/3 Response to previous blog. Supports the path, but suggests that rather than stopping the path at Goldsboro, it should extended one more block to Glenbrook so that the path's users can connect to the Capital Crescent Trail.
Blog Comment	Opposed - Cost and impacts	1/4 Response to previous blog. Opposes construction due to cost, the impact on trees, and placement of the path close to homes. Believes the path will depreciate home value.
Blog Comment	Supports master plan	2/4 Response to previous blog. Supports the communities Master Plan.
Blog Comment	Supports the path for safety	3/4 Response to previous blog. Supports the path to provide the residential community a place to safely walk along the major street, and the fact that it will be on County land as opposed to private property. Notes that many communities in Bethesda and Potomac have these type of paths, and it does not depreciate home value.
Blog Comment	Supports the path for safety	4/4 Response to previous blog. Believes everyone should be able to safely cross the street and that it is necessary for safety improvements to be made.
Blog Comment	Opposed	1/3 Response to previous blog. Lives on Bradley Blvd. Believes the path does not need to be built and that his family is safety able to walk to downtown Bethesda without a path.
Blog Comment	Opposed to addition of impervious pavement	2/3 Response to previous blog. Believes increasing imperviousness on Bradley Blvd will exacerbate the poor drainage that currently exists. Notes lack of curb and gutter and swales in the open sections. Rather than building a path or additional bike lanes, suggests restriping the existing shoulder to accommodate bikers. Sees the project as incrementalism, which will eventually lead to additional travel lanes and traffic.
Blog Comment	Supports to safety improvements	3/3 Response to previous blog. Clarifies that the bike lanes are not additions to existing shoulders but modifications of existing shoulders. And that the net increase in pavement will be the sidewalk on the side and the shared path in the north, which they feel are needed because Bradley is too busy to cross at random places.
Blog Comment	Support	1/6 Response to previous blog. Biker that has fallen down on Bradley because of the poor conditions. Feels walkers have it worse, and the project would positively impact more than just residents.
Blog Comment	Opposed	2/6 Response to previous blog. Does not support placing more impervious asphalt without any drainage improvements, and believes that the bioswales will not be sufficient to keep from lawns from flooding. Skeptical of the County's ability to maintain the improvements.
Blog Comment	Supports for safety	3/6 Response to previous blog. Supports improvements for safe travel for pedestrians without making a dangerous crossing of Bradley or Goldsboro, but believes the scale, scope, and drainage needs to be considered more carefully. Is not opposed to cutting down trees close to the road, due to the issues they have caused over the past few seasons.
Blog Comment	Supports the path	4/6 Response to previous blog. Lives on Bradley Blvd, and supports the path and bioswales because it is public right of way and not her property.
Blog Comment	Supports bike lanes	5/6 Response to previous blog. Regular biker that goes around Bradley due to the damaged shoulders, poor lane layout at Goldsboro, and the speeding traffic.
Blog Comment	Supports bike path	6/6 Response to previous blog. Would rather have the pike path than two more lanes of traffic.
Blog Comment	Supports all improvements	Response to previous blog. Supports any enhancements to increase safe alternatives to auto traffic.
Blog Comment	Supports bike lanes and path.	1/6 Response to previous blog. Believes that the bike lanes and a path will make Bradley much safer, and make the area much more appealing.
Blog Comment	Supports bike path	2/6 Response to previous blog. Supports bike path along Bradley as long as there are storm water improvements, because residents lawns are constantly flooded. Does not believe the bio-swale will be able to stop the flooding in cases of large rainfall. Suggests restriping the shoulder to include bike lanes. Wants the trees on Bradley to be preserved as much as possible, because many are old and specimen status.
Blog Comment	Supports bike path	3/6 Response to previous blog. Feels the bike path will have a positive impact on the community, rather than ruin its character. Suggests coming up with better drainage improvements, as bio swales won't be able to help with the flooding of residents yards, and separating the road from the shared use path as much as possible with grass and trees.

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Blog Comment	Supports improvements	4/6 Response to previous blog. Believes the road is too dangerous as it stands, mainly because traffic often travels far above the posted speed limit. Feels a sidewalk will enhance property value and the sense of community.
Blog Comment	Supports for safety	5/6 Response to previous blog. Believes that navigating down Bradley is dangerous and supports the paths, so they don't have to cut through neighborhoods.
Blog Comment	Supports sidewalk	6/6 Response to previous blog. Notes that there were similar oppositions for the sidewalk on Glenbrook Road in 1997, and none of the negative impacts, such as killing trees, flooding, and destroying rural character of the neighborhood, occurred.
Blog Comment	Support	Response to previous blog. Notes sustainable economic development is to provide sustainable transportation alternatives, and good bicycle facilities are a key part of sustainable transportation.
Blog Comment	Support if drainage improvements	Suggests that drainage improvements be included within this project. Tells homeowners along Bradley to demand provisions for drainage improvements due to their flooding issues.
Blog Comment	Opposed design	A license landscape architect and land planner, notes that there is only a very small portion where the distance of the bike path from the edge of pavement on the site plan meets the typical section. Notes improper placement of bio swales / microbiofilters, which suggests that water flows uphill and pushes bikeway further towards the lot side.
Blog Comment	Support	Supports the path and clarifies the bioswale placement will allow it to handle runoff from the road and path, which the previous poster did not believe would happen.
Blog	Opposed - Constr & Maint Cost / Use	Strongly opposes the project. Does not believe that the construction and maintenance costs and future commitments are worth, what he believes will be, a sparingly utilized bike path which leads no where. Notes that the MacArthur bike path construction resulted in limited use, rather the bikers continued to use the travel lanes. Questions County's maintenance plan and a justification of expenses.
Blog	Opposed - Expenses, Maint, Safety	Strongly opposes the project due to cost, maintenance, and safety issues: Does not want to take on the responsibility of shoveling a 1/2 mile path; believes the path will be a safety issue for bikers as residents attempt to get onto Bradley, as well as create confusion for bikers as the trail ends; concerned that the bike path will cut through school bus stops and be a safety issue for the children; has not seen the signed petition by residents and the South Bradley Hills Neighborhood Association; believes the increased traffic for mean accidents and injuries.
Blog	Supports path or sidewalk	Supports the addition of a path or sidewalk to make a safer route for pedestrians passing through Bradley Blvd.
Blog	Supports a combination of alt 2 and 3 with modifications	Supports a mixture of alternatives 2 and 3. Suggests a 6 foot sidewalk on the south side, 5' rather than a 4' bike lanes on both sides, a 10' shared path on the north or 8' with grass adjacent to path, extending phase of planning and construction to Glenbrook Road for access to Capital Crescent Trail, changing the traffic pattern on the westbound Bradley at Goldbor to eliminate the merge, changing county policy on snow removal, cross walk improvements at Brite Drive and Durbin Road, keeping the shared path further from the road, left turn lanes at Wilson, and changing lane width to 11' on Bradley.
Blog	Supports path or sidewalk	Suggests creating a 4th option that cleans up the shoulders for commuter bikes and adds sidewalks on Bradley for pedestrian connections.
Blog	Opposed	Opposes building the path in front of their home, as well as cutting down trees.
Blog	Supports bike path	Supports the construction of the bike path to help increase bicycle traffic, encourage more riders, and reduce motor vehicle traffic. Believes the current condition discourages cyclists and notes that cars often have to slow down and cross the center line to avoid them.
Blog	Supports path and bike lane	Supports the construction of a 8-10' path rather than 12'. Feels a 11' lane is more suitable lane width to save room and reduce traffic speeds, and a 4' bike lane would be too narrow. Belives the improvements would allow for a safer link/access for many cyclists to the Capital Crescent Trail.
Blog	Opposed - Preservation	Opposed to construction and supports no build alternative for preservation of the area. Feels the construction will ruin Bradley's character.
Blog	Support if drainage improvements	Supports the construction of a bike path, but feels there needs to be more drainage improvements than only a bioswale, in the area, as their yards are constantly flooding.
Blog	Opposed - incrementalism and drainage issues	Believes there is ample room on the shoulder on Bradley Boulevard to have a striped bike lane. Feels that the path and shoulder improvements are only setting up future additions of a 12' travel lane. Feels adding a path and bioswale will not solve the drainage issues and flooding of their lawn.

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Verbal	Highway - Design	Widen driveway entrances to allow for residence maneuverability.
Verbal	Highway - Design	Turn needs to be tight at Wilson and Bradley intersection. Carl will explore reducing storage length.
Verbal	Traffic - General Design	Traffic calming measures that would allow drivers and residents to interact.
Verbal	Geotech	The property at 5640 Bradley Blvd indicated that sinkholes and erosion have been noted. They do not appear to be within the right-of-way, but a brief investigation of site geology may be warranted to ensure Karst topology is not present.
Verbal	Engineering - Estimate and Scope	Someone asked for cost estimates or range of magnitude so concepts can be evaluated.(David Hillsenrath)
Verbal	Drainage - Graphics Issue	Some property owners were confused by the depiction of the swales on the typical sections. The confusion seemed to stem from the fact that the existing ground with grass cover was shown over top of the v-ditch section. Recommend revision of that graphic.
Verbal	Traffic - Data	Review Traffic Data (Projections for future?). Will improvements create more traffic along Bradley?
Verbal	Drainage - Improvements	Regardless of the proposed roadway improvements, does Bradley Blvd need drainage improvements? Several property owners expressed concerns over flooding and erosion along the corridor that were unrelated to the proposed sidewalk and roadway improvements.
Verbal	Highway - Design	Provide refuge between path and roadway for cars.
Verbal	Highway - Design	Prefer taking away the parking lane Glenbrook to Goldsboro.
Verbal	Traffic - Striping	Perhaps we can separate shoulders from travel lanes with flex posts.
Verbal	Traffic - Signals	Ped Activated Signals
Verbal	Highway - Plan	More paving? Elaborate Plans? Where is there an example in place that has bike lanes and shared use path?
Verbal	Drainage - Bioswale	Issues with bioswale if permeable pavement is used.
Verbal	Traffic - Signals	Is signal at Bradley and Wilson state of the art?
Verbal	Landscape	In buffer zones adjacent to the sidewalk (south side) can trees be added to define the roadway edge.
Verbal	Traffic - Data	How often does turn lanes back up past bypass lanes?
Verbal	Engineering - Schedule and MOT	How long will it take to build? How will traffic be affected? Maintenance of Traffic will be important. 1-1.5 to construction.
Verbal	Traffic - General Design	How do we expect operations to function?
Verbal	Engineering - Design	Context sensitive design
Verbal	Highway - Design	Consider left lane past Glenbrook should turn onto Goldsboro; similar to eastbound Bradley at MD 355.
Verbal	Drainage - Bioswale	Concerns with bioswales and its impact on the longevity of landscaping.
Verbal	Traffic - General Design	Concerns for additional commuter traffic with left turn lane at Wilson
Verbal	Drainage - Bioswale	Concern was raised over the maintenance frequency of the ditches and bioswales. Afraid they will be a magnet for debris and a dumping ground. Check with DEP on how often bioswales maintained.
Verbal	Highway - Safety	Concern that the shared use path and driveways will add more pedestrian and cyclist traffic and conflicts. Concern regarding bikes and vehicles mixing.
Verbal	Drainage - Bioswale	Concern that if bioswale does not drain fast enough it can be a breeding ground for mosquitos.
Verbal	Highway - Design Issues	Concern about turning out of cross streets onto Bradley.
Verbal	Highway - Design Issues	Concern about the loss of shoulder in locations where used as a safety valve.
Verbal	Engineering - Risk and Safety	Concern about people pulling in and out of traffic, especially at night (sight/awareness). Resident along Bradley believes it will create a more dangerous environment because there are more moving parts. Raises risk factor considerably.
Verbal	Highway - Design	Concern about adding a left turn at Wilson. It will draw more traffic, less gaps.
Verbal	Engineering - Alternatives	Can we still have the no build option?

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Received By	Topic	Comment/Question
Verbal	Traffic - Data	Are accidents on Wilson coming from Wilson or Bradley?
Verbal	Highway - Design	Additional crosswalks
Verbal	Highway - Safety	Adding more bikers to Bradley is a danger. Leave bikers within vehicular lanes.
Verbal	Landscape	A concern was raised about preserving the overall aesthetic presentation of the corridor. Specifically, the concern seemed to be to ensure that that proposed landscape design did not create a boulevard feel out of character with the current landscape.
E-mail		Would like more information pertaining to the project sent to her.
E-mail		Would like more information pertaining to the plan and the proximity of the project to his property.
E-mail	Supports trail for connection to CCT	Supports trail, but would like to see it extended to Glenbrook, so people can gain access to the Capital Crescent Trail.
E-mail	Supports alt 4a	Supports the master plan. Supports a 4' bike lane on the shoulder for experienced bikers, and a separate path for pedestrians and recreational bikers.
E-mail	Supports improvements	Supports the improvements on Bradley Blvd to increase safety for pedestrians, especially those who use the Ride On and children who walk to and from their homes to get to their bus stop on Bradley Blvd.
E-mail	Supports alt 4a	Supports the construction of a shared use path to allow for bikers of all ages and experiences be able to safely travel along Bradley, as well as providing a route for those in surrounding neighborhoods to walk, rather than currently being contained in their neighborhood due to the safety issues on Bradley.
E-mail	Supports improvements	Supports the construction of a bike path, because currently drivers use the shoulder as a lane during rush hour and the shoulder is damaged and full of debris; a sidewalk on the south side for pedestrian access; and a curb on the southside to help accommodate drainage, due to the current runoff which floods many lawns. Is not concerned about the loss of trees, because many are old and drop limbs onto the street.
E-mail	Supports alt 4b	Supports the addition of sidewalks on both side of Bradley Blvd, with one being wide enough to support bikers.
E-mail	Supports alt 4b	Supports the addition of sidewalks along Bradley Blvd due the current safety risks to bikers and walkers along this street.
E-mail	Supports alt 4a	Supports shared use asphalt path for joggers and bikers to safely get to the crescent trail.
E-mail	Opposed - monetary	Supports no build due to the cost and impacts of the project. Would not be opposed to only a sidewalk, like the Wilson Lane sidewalk.
E-mail	Supports alt 4a	Supports bike path along Bradley Blvd, to improve safety and encourage more to bike; would like to see it extended to at least Huntington.
E-mail	Supports alt 4c	Supports alternatives 4b and c, but prefers 4c to tremendously enhance safety and improve non-automotive transportation options into and around Bethesda. Also supports the bioswales as being the only viable option for reducing flooding during heavy storms, and the minimal impacts on mature trees. Suggests extending the project beyond Goldsboro to Glenbrook to feed into the Capital Crescent Trail; add pedestrian activated light at Brite Drive, encourage traffic through signage heading into downtown Bethesda to use Cornish Road; improve path at the end of Cornish road for safer bicycle access to Glenbrook Road; paved gravel path that extends from Elm/Exfair intersection to Glenbrook Road; Convert Elm St between Arlington & Woodmount to a one-way street heading east with a dedicated bike lane; Convert Bethesda Avenue between Arlington & Woodmount to a one-way street heading west with a dedicated bike lane.
E-mail	Supports alt 4a, b, or c	Supports alternatives 4a, b, or c, so that children can safely cross the street from their bus stops to the homes, and to allow people to safely walk to a bus stop, metro, or downtown Bethesda.
E-mail	Supports alt 4c	Supports alternative 4c without a sidewalk on the south side of Bradley Blvd. Would like to see more detailed planning on drainage; will it be adequate? Who will maintain it? How often will it be maintained? Who should they contact if storm drains have issues? Is maintenance feasible with the county budget? Also concerned about impacts to their driveway and plants, and who they should contact to assure their plants aren't damaged. Suggest a pedestrian island at Bradley and Beam Court.
E-mail	Supports alt 4c	Supports alternative 4c - sidewalk on north side of Bradley Blvd with consistent bikeable shoulder on both sides. Also supports option 3 and 4, but opposed option 1.
E-mail	Supports alt 4c	Supports alternative 4c - sidewalk north side only and bikeable shoulders. Would like to see several striped crossing zones on Bradley at major intersections for pedestrian crossing. Believes alternatives 2 and 3 include too much hardscape, intrudes too much on the residents, and fundamentally changes the character of the road and community.
E-mail	Supports alt 4a and 4c	Supports alternative 4a, as it supports cyclists of all kinds as well as pedestrians on both side of the street. Due to financial constraints, finds alternative 4c to be more feasible while providing sufficient safety improvements. Would like to see a wider path of 8-10 feet for alternative 1, and wider bike lanes (minimum of 5.5' for closed sections, 5' wide on open sections, and 14' width for bike lane + parking area) for alternative 3 to comply with county road codes.
E-mail	Supports bike lane and sidewalk	Supports adding a sidewalk and bike lane, to provide safe access for bikers and walkers to Bethesda, in particularly the high school students from Whitman High School.
E-mail	Supports alt 4b	Supports a wide shoulder for experienced biker, at least a path on one side of the road, and a sidewalk on the other to accommodate children and less experience cyclists as well as pedestrians. Suggests extending the project to connect to the Capital Crescent Trail.
E-mail	Supports improvements	Supports a modified version of alt 4a with an 8 foot Shared Use Path on the North side only and no sidewalk on the South Side of Bradley Boulevard while providing consistent bikeable shoulders.

Bradley Boulevard (MD 191) Improvements Project
Public Comments
November 10, 2010 Public Meeting

Received By	Topic	Comment/Question
E-mail	Opposed - preservation and safety concerns	Strongly opposes any construction on Bradley Blvd. Believes that Bradley Blvd natural beauty should be preserved, that the addition of a bike path, sidewalk, and swale would cause more confusion for those exiting or entering their driveway and cause more safety issues than their currently are, that there is already sufficient connection to downtown Bethesda through Wilson Lane and Cornish Road, and that maintenance will be an issue. Would like to see the no build option be posted on the website and that it should be mentioned more in literature and at meetings.
E-mail	Supports safety improvements	Son had a car accident on Bradley at Wilson due to damaged roadway and driveway entrance. Would like to see this area fixed as soon as possible.
E-mail	Supports improvements	SHA Supports any and all improvements for alternative modes of transportation for all users.
E-mail	Supports safety improvements	Regular biker, supports improvements to enhance safety and promote a greener lifestyle.
E-mail	Opposed	Ranked preferences: no build, alternative 4c, alternative 4b, and lastly alternative 4a.
E-mail	Opposed - preservation	Opposes cutting down trees and spending money on these changes to Bradley. Believes that it will lower property values and harm the environment. Wants to see the no build option on the website.
E-mail	Opposed - monetary	Opposes construction on Bradley Blvd, believes it will make traveling worse and waste tax payer's money.
E-mail	Opposed - traffic issues	Opposes all construction on Bradley Blvd. Believes that there is too much traffic on Bradley, and even with bike lanes, it will still be unsafe for bikers, and that the county should not be spending money on this project now.
E-mail	Opposed - monetary	Opposed to the project for monetary reasons.
E-mail	Opposed - preservation and monetary	Opposed to Montgomery County spending tax payer dollars on investigating and building on Bradley, during budget cuts. Wants to preserve Bradley Blvd and its current mature landscaping and greenspaces. Would however support painting a bike lane on the current shoulder for bikers.
E-mail	Opposed - preservation of trees	Opposed to construction on Bradley Blvd due to the impact to the trees in the area. Feels the current natural tree canopy cover created by the trees on Bradley Blvd provides a nice shaded street, calms traffic, and is a natural sound and pollution buffer.
E-mail	Opposed - preservation	Opposed to building a bike trail. Believes that constructing the trail will harm the area aesthetically, interfere with traffic, and cause a safety hazard.
E-mail	Opposed - paths and sidewalks will create more issues.	Opposed to any sidewalk or designated bikeway along Bradley Blvd. Believes that adding these paths will cause right of way issues on the adjacent side streets for those using the path and cars queued at the intersection waiting to turn; either the cars will block the paths or cars will have to stop far from the intersection and have more obstacles to cross or avoid when making their turns. Believes the shared use path will create conflicts with the Ride-On bus loading and unloading location and whether or not it will pull into the path or remain on the street, and that many drivers will drive into the drainage ditches. Also is opposed to county spending on all aspects of this project, and feels the master plan has nothing to do with this proposed project.
E-mail	Opposed - monetary and unnecessary	Opposed to any construction on Bradley Blvd. Believes that traffic studies and development plans overlooked that there is already access to the Crescent Trail and Bethesda CBD using side streets and paths already in place, that there is no information proving that safety and property values will be increased, and that the county should not be spending money on the construction and maintenance of this project.
E-mail	Opposed - monetary and lack of improvements	Opposed to any construction on Bradley Blvd. Believes that each of the proposed alternatives will be worse than the current situation and that adding sidewalks and drainage ditches, and the associated landscape and traffic impacts will not be improvements. Feels the project will only have some recreational benefit and that the costs will not be justified.
E-mail	Supports safety improvements	Kenwood Park Citizens Association which represents 640 homes in the area near the bikeway strongly supports the modification of Bradley Blvd for greater bicycle and predestriation friendliness and safety between Goldsboro and Wilson along with direct connection to the Capital Crescent Trail. Would like the mature tree cover to be largely kept intact, and possible stoplight controlled pedestrian crosswalk somewhere near Cornish Road or near one of the bus stops.
E-mail	Opposed - monetary	Is not opposed to minor improvements including keeping bikers on the road with shared roadway signs and a pedestrian pathway close to the road, as long as existing green space and trees are preserved. Would prefer curb and gutter as an alternative to swales. However, is opposed to the project due to the lack of demand to warrant the path, all the costs associated with its construction, the removal of the trees, and reduction of green space.
E-mail	Opposed	In response to Patricia Shephard's email on November 29, 2010 regarding the Bradley Boulevard Improvements Project. Believes the county has to do more on spreading information on No Build Option, beyond just having a pdf online.

Bradley Boulevard (MD 191) Improvements Project
Public Comments
November 10, 2010 Public Meeting

Received By	Topic	Comment/Question
E-mail	Opposed	Believes the project will be destructive to Bradley Blvd due to the following reasons: adding a left turn onto Wilson will not prevent people to pass on the right and will put bikers and pedestrians in jeopardy; adding bike paths will increase traffic congestion; a path from River Road to Little Falls towards Bethesda and the Crescent Trail can work as an alternative which would not impact many trees; adding a bike lane will make it even more difficult for those living on Bradley to exit their driveways, and create a hazard for both drivers and bikers; improvements to sidewalks on side streets would benefit the community more than adding one on Bradley, as they are currently used to access downtown Bethesda and the Crescent Trail; current roadway can be slightly improved and the overgrown grass can be trimmed to accommodate bikers and walkers; adding bioswales will add to the existing mosquito problem; there are not enough bikers or walkers to justify modifying Bradley when main roads like River Road could accommodate them; cutting down the trees would destroy the natural environment of the neighborhood, which many residents have invested their own personal money to maintain; adding a path to the Bradley Community which will be used mainly to accommodate those outside the community, is unfair to those living on both sides of Bradley Blvd. Suggests adding more crosswalks.
E-mail	Supports alt 4a	As a resident on Bradley Blvd for over 20 years, strongly supports improvements to the area, especially those from alternative 4a - bikeable shoulders and sidewalks on both sides of Bradley Blvd. Suggests adding more crosswalks.
E-mail	Supports alt 4a	A cyclist, which supports alt 4a - shared-use path on Bradley Blvd. Believes the county needs to fully accommodate cyclists which do not like to ride along side traffic.
E-mail	Supports alt 4a	A cyclist, that bikes on Bradley Blvd everyday. Would support alternative 4a.
E-mail	Supports alt 4a	A cyclist, that bikes on Bradley Blvd during the week because traffic congestion keeps speeds low, but on weekends vehicles greatly exceed the speed limit making it dangerous for bikers. Would like a shoulder for experienced cyclists and a separate path for inexperienced cyclists.
Comment Card	Supports alt 4a	Supports making Bradley Blvd walkable as well as having adequate room for bikers. Would like sidewalks on both sides. Strongly prefers alt 4a, but is not opposed to 4b, or 4c as long as bioswales can be maintained by a contractor.
Comment Card	Supports improvements	Supports improvements which separates pedestrians from vehicles and increase safety for bikers and pedestrians.
Comment Card	Supports alt 4c	Supports alternative 4c, the addition of a sidewalk on the north side, due to the current lack of safe pedestrian access on Bradley Blvd.
Comment Card	Supports alt 4c	Supports alternative 4c, the addition of a sidewalk on the north side, due to the current lack of safe pedestrian access on Bradley Blvd and to create a more vibrant community. Pedestrians should not be walking on the narrow shoulders, due to fast moving cars, which frequently drive on the shoulder.
Comment Card	Supports alt 4c	Supports alternative 4c, sidewalk on north side only for monetary reasons, to maintain pedestrians safety focus: providing a safe route for walking separated from automobiles, and snow removal for a sidewalks close to the road would cause problems when snow plows pile snow on the sidewalks. Would prefer a sidewalk to the south side, which is more separated from the roadway.
Comment Card	Supports alt 4c	Supports alternative 4c with a sidewalk only. Believes bikers travel too fast to make a shared use path safe or pleasant for pedestrians. Urges putting the project on hold for financial reasons.
Comment Card	Supports alt 4b	Supports alternative 4b, sidewalks on both sides of Bradley Blvd, drainage improvements, and a left turn lane on Bradley at Wilson Lane.
Comment Card	Supports alt 4b	Supports alternative 4b, sidewalk on both sides of Bradley Blvd, however if that is not feasible, then would like to see at least a sidewalk built on the north side.
Comment Card	Supports alt 4a	Supports alternative 4a, sidewalk and bike path along Bradley Blvd between Huntington Parkway and Goldsboro Road.
Comment Card	Supports alt 4a	Supports alternative 4a, a bike and walkable path on both sides of Bradley Blvd.
Comment Card	Supports alt 4a	Supports alternative 4a, a bike and walkable path on both sides of Bradley Blvd.
Comment Card	Supports alt 4c	Supports alt 4c.
Comment Card	Supports alt 4c	Supports all alternatives which have at least the addition of a sidewalk, preferring alternative 4c.
Comment Card	Supports sidewalk	Gathered signatures in 2003 for a sidewalk, and found overwhelming neighbor support for safety improvements. Supports only the addition of a 5' sidewalk for safety improvements.
Comment Card	Supports alt 4b	Finds widened bikeable shoulders adequate, however would also support a 8' wide path for inexperienced bikers, and the addition of at least one sidewalk. Does not believe the left turn lane onto Wilson is necessary.
Blog Comment	Opposed - Unnecessary Costs	Response to previous blog. Opposed to the construction of the trail for monetary reasons.

Bradley Boulevard (MD 191) Improvements Project
Public Comments
November 10, 2010 Public Meeting

Received By	Topic	Comment/Question
Blog Comment	Supports alt 4a	Response to previous blog. Believes that the path would provide better connections if continued to Glenbrook, rather than stop at Goldsboro.
Blog Comment	Supports alt 4a	Response to previous blog. Believes that the bike path should be constructed, and if it is not constructed, the county will eventually add lanes of traffic instead.
Blog Comment	Supports alt 4a	Response to previous blog. Believes that pedestrians should not be introduced to the roadway, and that the existing conditions force pedestrians to walk along the shoulder. Supports the construction of a sidewalk and separate bike path for safety.
Blog	Opposed - safety concerns	Would prefer reducing speed limits and increasing traffic safety rather than introducing pedestrians to an unsafe road.
Blog	Supports for safety improvements	Supports the proposal for both safety and quality of life.
Blog	Supports master plan	Supports the master plan and feels adding better bike and walking access to Bradley will improve safety and allow for more people to choose walking/biking than driving in the area. Notes that a 4' bike lane is sufficient and that like on MacArthur Blvd, more experienced bikers will likely choose the bike lane for their travels, leaving the path for walkers and recreational bikers.
Blog	Supports alt 4b	Supports the addition of sidewalks to allow for safe travel for residents walking and biking along the busy roadway. Notes that this is one of the few areas left in the area without safe accommodations for cyclists and pedestrians.
Blog	Supports improvements	Supports the addition of facilities for cyclists and pedestrians to safety and comfortably travel Bradley Blvd. Would like to see more traffic calming measures, greenery close to the roadway, and a tight turn on Wilson Lane.
Blog	Supports alt 4b	Supports the addition of a sidewalk to the north and south, separated several feet from the road, to allow for pedestrian access. Believes bikers should continue to use the shoulder on Bradley Blvd, and with minor widening in areas where the shoulder width becomes too small is sufficient. Feels that restriping to smaller lane widths is unnecessary and would not improve safety for bikers.
Blog	Supports alt 4a	Supports path for walking and biking, however wants updates on the plan.
Blog	Supports alt 4a	Supports path for biking, and believes it will create a safe pedestrian connection from neighborhoods to a vital center of Bethesda. At least thinks there should be a sidewalk installed on one side of Bradley.
Blog	Supports alt 4a or 4b	Supports alternatives 4a and 4b to add a sidewalk or path along the south side of Bradley Blvd to at least the intersection of Arlington. Is in favor of safety and water drainage improvements; finds Bradley Blvd too dangerous to walk along, especially in the south where the shoulder is narrow.
Blog	Supports alt 4b	Supports alternative 4b for public safety reasons. Finds the current situation unsafe for all users.
Blog	Supports alt 4a	Supports alternative 4a's wider path, bioswale, and traffic calming measures.
Blog	Support alt 4a	Strongly supports addition of sidewalks and a bike path, and believes it will substantially improve the quality of life of people in the area, as they are currently walking on or along side a dangerous road to access downtown Bethesda.
Blog	Supports alt 4a	Strong supports the addition of the path to improve safety for children, walkers, and bikers that already travel along Bradley Blvd.

Bradley Boulevard (MD 191) Improvements Project
Public Comments
Recommended Alternate

Received By	Topic	Comment/Question
E-mail	Opposed - traffic issues	Opposes shared use path construction on Bradley Blvd. Believes that there is too much traffic on Bradley and that a shared use path will be unsafe for bikers. Believes the path doesn't connect to anything useful, that the county should not be spending money on this project now, and that the path won't be maintained properly.
E-mail	Opposed - monetary and unnecessary	Opposed to any construction on Bradley Blvd. Believes that there is already access to the Crescent Trail and Bethesda CBD using side streets and paths already in place. Believes that the county should not be spending money on the construction and maintenance of this project. Believes there should be no new construction since existing infrastructure is not being maintained properly.
E-mail	Opposed - impacts	Opposed and believes the construction should only occur on the north side of the roadway due to the ample right-of-way.
Comment Card	Supports alt 4a	Supports the project. Is concerned with drainage along properties on the south side and sight distance for entering and exiting driveways.
Comment Card	Supports alt 4a	Supports the project and believes the project team has done good work.
Comment Card	Opposed - traffic issues	Opposes shared use path construction on Bradley Blvd. Believes that there is too much traffic on Bradley and that a shared use path will be unsafe for bikers and pedestrians. Would support a sidewalk only option.
Comment Card	Opposed - monetary and traffic issues	Opposed to the project for monetary reasons. Opposes shared use path construction on Bradley Blvd. Believes that a shared use path will be unsafe for pedestrians.
Comment Card	Opposed - maintenance and cost	Opposed to the project for monetary reasons. Also believes that the sidewalk on the south side should have a buffer or else snow removal will be very difficult.
Comment Card	Opposed - monetary	Opposed to the project for monetary reasons. Also believes that the project is not necessary.
Comment Card	Opposed - monetary	Opposed to the project for monetary reasons. Also believes that the project is not critical . Would prefer that existing infrastructure is properly maintained. Would prefer an option that builds a sidewalk on the south side.
Comment Card	Opposed - impacts	Opposed due to the impacts the project will cause on their property. Also is concerned with moving traffic closer to home.



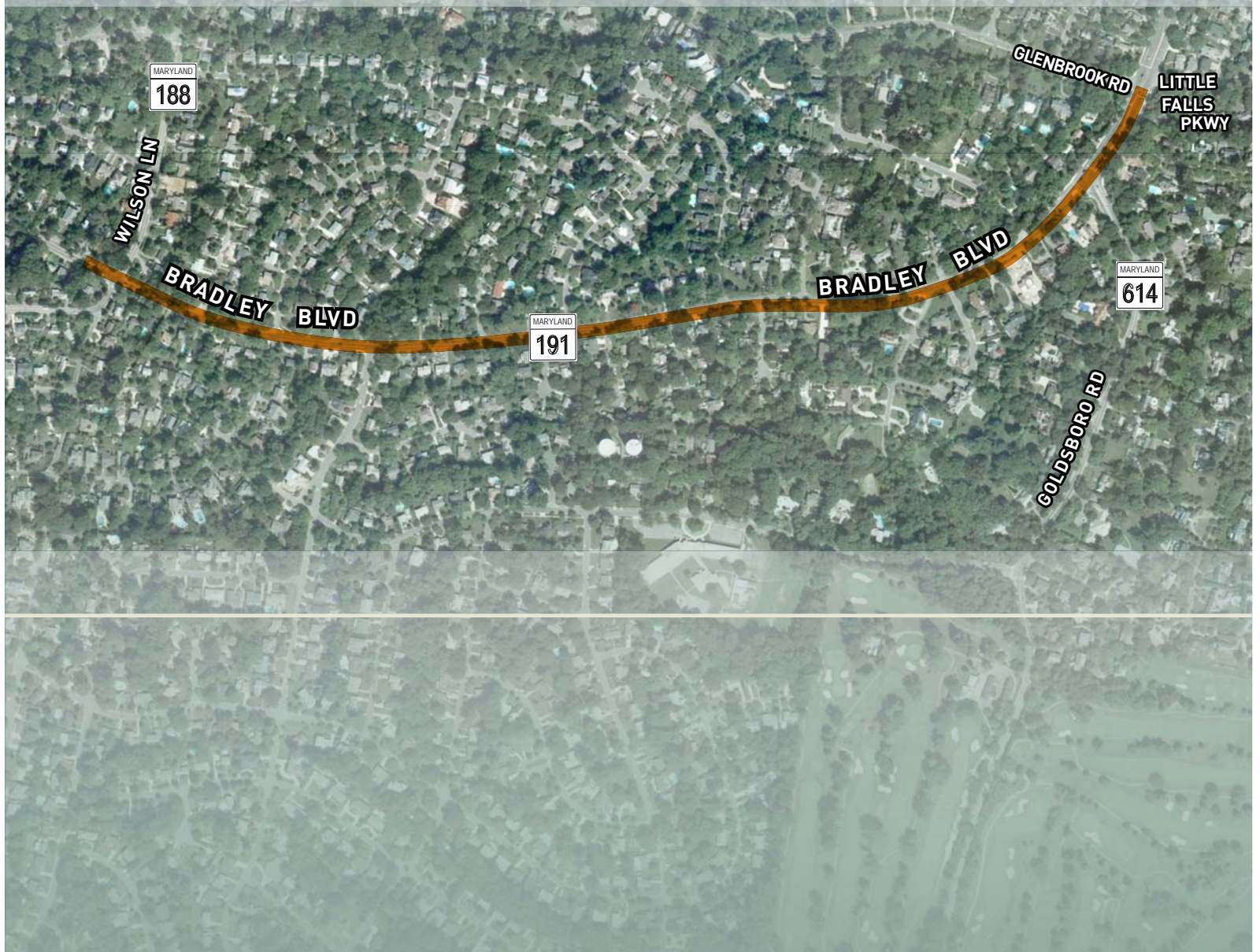
Planning

Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

APPENDIX D

Project Team Meeting Minutes





DTE

planning design construction



Division of Transportation Engineering

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Bruce Johnston, P.E.
Division Chief

Holger Serrano, P.E.
Deputy

Sogand Seirafi, P.E.
Planning & Design

Team Meeting: #1
Date: April 1, 2009
Time: 10:30 am-12:00 pm

Location:
EOB, 9th Fl.
Conference Room,
101 Monroe Street
Rockville, MD 20850

Purpose: Introduce
Technical Study

Project:
Bradley Boulevard
Bikeway from Wilson
Lane to Goldsboro
Road, Facility
Planning, Phase I

Project Overview:

This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk

Date: May 19, 2009

Date of Meeting: April 1, 2009

Time: 10:30 a.m.

Location: EOB
101 Monroe Street, 9th Floor Conference Room

Project: Bradley Boulevard (MD 191) Bikeway Project
From Goldsboro Road to Wilson Lane

Attendees:

Aruna Miller	MCDOT-DTE
Pat Shepherd	MCDOT-DTE
Jeff Dunkel	MCDOT-Pedestrian Safety
Deanna Archey	MCDOT-Transit Services
Lee Winestone	MCDOT-Transit Services
Robert Elder	MCDOT-Sidewalk Program
Dennis Robinson	MCDOT-Property Acquisition
David Kuykendall	MCDPS-Water Resources
Carl Starkey	MCDOT-Traffic
Gail Tait-Nouri	MCDOT-DTE
Michael Mitchell	MCDOT-DTE
Chuck Kines	MNCPPC-Transportation
Jim Guinther	WR&A
Tom Hannan	WR&A
Bryan Townsend	WR&A

The kick-off meeting for the subject project was held on April 1, 2009. The following is a summary of the items discussed:

- I. Introductions
Project team members introduced themselves.
- II. Project Overview
Patricia Shepherd gave a brief introduction of the project.
 - a. Bradley Blvd. is a two-lane, arterial road with significant vehicular and bicycle traffic, on a 100' right-of-way, where the roadway is located in the western portion of the right-of way. Bradley Boulevard is a SHA roadway (MD 191.) The project limits are Wilson Lane (MD 188) to the north and Goldsboro Road (MD 614) to the south.
 - b. The facility will be a dual bikeway, per the County Functional Bikeways Master Plan. The dual bikeway consists of on-road bike shoulders and an off-road shared use path.

- c. The shared use path will impact frontage of existing homes, including private improvements on public land. Other issues include avoidance of utilities and drainage improvements.
- d. Bradley Boulevard's bus stops were upgraded with shelters in Summer 2008, concrete pads, etc., in the spring. The bus stop project went very well, working in partnership with SHA. Stephanie Yanovitz was the SHA contact, but she no longer works for SHA. During the project, the crosswalk at Brite Drive was relocated due to a resident's concern that it terminated in his driveway. Mr. Weinstein and Ms. Archey were involved with this project.
- e. During the project, significant bike traffic was observed in the corridor. An upgrade of the shoulder was considered as a component of the bus stop project, but SHA's funding contribution (\$250,000) for shoulder improvements was not made available at that time.
- f. Ms. Miller noted that the County will need to investigate the feasibility of retaining the funding commitment through the entire length of the study and design process.
- g. Ms. Shepherd noted that the County should remain aware of opportunities to break out an advance project if needed to use the SHA committed funding.
- h. The planning of the facility should not be driven by the available funding.
- i. The County is trying to identify a team member from SHA for the project. There has been some contact with Kate Mazzara.

III. Master Plan relationship

Mr. Guinther explained the Master Plan in relationship to the project.

- a. The preferred width of bike shoulders will be 6'; minimum is 4'. A shared use path is also identified.
- b. The March 2005 Countywide Bikeways Functional Master Plan proposes a dual bikeway along Bradley Boulevard: a shared use path and signed shared roadway which will run from Persimmon Tree Road to Wisconsin Avenue, connecting users to the Capital Crescent Trail and (indirectly) to the Bethesda Central Business District.
- c. There is an existing path on Wilson Lane. Both Wilson Lane and Goldsboro Road are ultimately designated for on-road bike lanes in the Functional Bikeways Master Plan.
- d. The Bethesda Chevy Chase Master Plan identifies Bradley Blvd as remaining a 2-lane arterial on 100' right-of-way.

IV. Key issues

Mr. Guinther led a discussion of key issues:

- a. The 100' Right-of-Way is to remain – the project is not to acquire right-of-way. Most right-of-way is on the east side of the existing roadway.
- b. Factors affecting design will include the shared use path, required bike shoulders, drainage, and existing private use of right-of-way. The existing roadway has shoulders varying in width from 0' to 12'.
- c. Drainage is primarily an east-to-west movement; there are significant existing drainage issues from Durbin Road to Wilson Lane, but there are also some existing drainage issues from Burling Road to Durbin Road. Existing ditches are shallow, there are inadequate culvert crossings of roads and driveways, and there are clogged pipes.
- d. Most above-ground utility poles are on the east side of Bradley. The County will NOT have prior rights in regards to pole relocation. This fact will inform the typical section and path alignment. There is plenty of setback from the poles to the right-of-way line, but there are private improvements in the right-of-way as well.
- e. Private improvements include gates, lights, fencing, and landscaping.
- f. The site constraints suggest a curvilinear path (not a typical offset from the roadway) is the possible appropriate solution to avoid impacts to obstructions within the right-of-way. It was suggested that the Director will need to confirm what the typical section and design standards (MDSHA vs. Montgomery County) might look like and adhere to, respectively.

- g. Although a closed section project was originally anticipated, it appears that an open section draining to a planted, 4:1 side slope dry swale would provide an opportunity for stormwater quality management while effectively using the existing available right-of-way. It would also allow the project to be constructed without compounding a pre-existing drainage problem in the front yards of the residences along the east side of Bradley Boulevard. The road and path would both drain to the dry swale. Otherwise, it may be difficult to manage stormwater in the existing right-of-way. Mr. Guinther asked Mr. Kuykendall if the project would qualify for redevelopment, thus eliminating quantity requirements; Mr. Kuykendall indicated that the County would be receptive to investigating this approach once data is available. Mr. Starkey noted that the County no longer allows pervious pavement due to maintenance issues. Mr. Kuykendall noted that CPV treatment will still be required – the project may only get a recharge waiver. There may be some resistance on swales. Preliminary volume control will be with facility sizing, next most favorable would be sand filters, and the least desirable would be hydrodynamic devices. Mr. Guinther noted that SHA may resist underground facilities. Mr. Mitchell noted that the Falls Road project requirements were for a 1 year storm discharge of less than 2 CFS, and that the project was exempt from quality treatment. It was noted that the County's recent requirements for Vegetated Integrated Management Practices to treat 25% WQv within the ROW will be required on this project.
- h. The roadway shoulders will be rebuilt where required, but otherwise the roadway will be milled and overlaid. Shoulders may need to be rebuilt where the roadway shifts to provide adequate shoulders and space for any required facilities on the west side of the road. 6' and 4' shoulders will be studied. A 10' and 12' shared use path will be studied.
- i. Mr. Guinther noted that WR&A will investigate if bus stop shelters and short sections of sidewalk will be required on the west side, as this may inform the required alignment modifications. WR&A will also investigate the adequacy of existing crosswalks and their locations. Mr. Weinstein noted that bus stops and crosswalk locations were relocated as a part of the recent bus stop upgrade project. "Mid block" stops on the west side of the road were generally located across from other roads; some stops were consolidated. Ideally, bus stops should be 500' apart. This project should avoid encouraging pedestrians to walk along the roadway. Mr. Weinstein noted that Brite Dr. has the only crosswalk in the project limits. Mr. Dunkel noted that the shared use path will change the primary concern from pedestrians walking along the road, to pedestrians crossing the road to get to the path. Mr. Starkey noted that the County does not prefer "random" crosswalks at unsignalized intersections. The State may have more latitude. Pedestrian connectivity is an issue to be examined as part of this planning process.
- j. Ms. Miller noted that the state will maintain the "curb-to-curb" portion of the roadway, and that the County will maintain beyond the pavement edge.
- k. Mr. Mitchell noted that the Falls Road shared use path is using pervious pavement (it is grandfathered in to approval), with underdrains; there will be no shoulder improvements on the Falls Road project.
- l. The Wilson Lane and Goldsboro Road intersections will be investigated as a part of the Bradley Blvd project. Currently at Wilson Lane, vehicles are using the shoulder to bypass vehicles stopped at the light, to turn from NB Bradley to EB Wilson or to bypass vehicles turning from NB Bradley to WB Wilson. This creates a concern with vehicular conflict with bicycles and pedestrians in this location. Justification for a right turn lane or other solutions will be investigated. Mr. Starkey noted that WR&A should start with traffic counts, but the project should definitely look at improvements.
- m. Mr. Kines noted that the cycling public is in support of the project, and that the South Bradley Hills Neighborhood Association collected 100 signatures in

support of the project in December 2003. Mr. Starkey noted that their attendance at meetings may be helpful.

V. Initial Analysis/ Data Collection

- a. Ms. Miller asked WR&A to develop a map showing the project location, bikeway linkages (existing and proposed), and pedestrian connections.
- b. Ms. Miller asked for an investigation of traffic and drainage requests/complaints on this section of Bradley Boulevard, to make sure the project is aware of all issues. Contact Kyle Liang, SHA Area Engineer.
- c. Mr. Dunkel noted that the Goldsboro Road intersection was recently improved to remove the free-flow movement from EB Goldsboro to EB Bradley; it is not functioning as intended, as vehicles do not stop before making the turn. WR&A is to investigate solutions for this problem.
- d. Ms. Shepherd has requested existing bicycle and pedestrian counts. Mr. Starkey noted that typically, the state only has counts at signalized intersections on file.
- e. WR&A will be conducting 13-hour counts of vehicles, pedestrians, and bicycles. Mr. Starkey asked that WR&A collect data at prominent minor road intersections, as well. Ms. Tait-Nouri asked that weekend bicycle counts also be conducted.
- f. Mr. Guinther requested Ride-On data for embarkments / disembarkments in the corridor from Mr. Weinstein and Ms. Archey.
- g. Mr. Guinther requested the 2008 County bike map layers and current aerials (electronic version).
- h. Goldsboro/Bradley intersection plans should be obtained. Ms. Tait-Nouri noted that a culvert north of Wilson was recently replaced; Mr. Guinther noted that the owner on the SE corner of the intersection has stated drainage issues.
- i. WR&A to develop Purpose and Need statement and send two weeks before the next meeting (currently anticipated to be in June 2009).
- j. Ms. Shepherd will determine if a closed section option should be developed (even though it appears to be infeasible in the context of the scope of this project).
- k. Mr. Guinther stated that the options will likely include a basic option, a high-level option, and a mid-range option.

VI. Project Schedule

- a. Next meeting in mid-to-late June
- b. Public outreach in the fall – meetings and a newsletter.



DTE

planning design construction



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Sogand Seirafi, P.E.
Planning & Design Chief

Tom M. Reise
Property Acquisition Chief

Tim Cupples
Construction Chief

Team Meeting: #2
Date: August 5, 2009
Time: 10:00 am–12:00 pm

Location:
SE Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Discuss Draft Purpose and Need, Draft Supplement to the EAF, and Draft Traffic Report. Present proposed concepts and typical sections.

Project:

Bradley Boulevard
Bikeway from Wilson Lane to Goldsboro Road,
Facility Planning, Phase I

Project Overview:

This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk on Bradley Boulevard east of Goldsboro and an existing sidewalk on Wilson Lane and provide safe pedestrian access to several transit stops and Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

Date: August 10, 2009

Date of Meeting: August 5, 2009

Time: 10:00 a.m.

Location: SE Conference Room
100 Edison Park Dr, 4th Floor
Gaithersburg, MD 20878

Project: Bradley Boulevard (MD 191) Bikeway Project
From Goldsboro Road to Wilson Lane

Attendees:

Aruna Miller (AM)
Pat Shepherd (PS)
Carl Starkey (CS)
Gail Tait-Nouri (GTN)
Jim Guinther (JG)
Robert Klasen (RK)
Walt Miller (WM)
Mark Roberts (MR)
JoAnn Trach Tongson (JTT)

Organization

MCDOT-DTE
MCDOT-DTE
MCDOT-Traffic
MCDOT-DTE
WR&A
WR&A
WR&A
WR&A
Mahan Rykiel Associates

The second meeting for the subject project was held on August 5, 2009. The following is a summary of the items discussed:

- I. Introductions
 - a. Project team members introduced themselves.
 - b. PS indicated that input from team members not in attendance will be sought and provided to design team
 - c. AM commented on quality of graphics are noted.
- II. Purpose of Meeting
 - a. JG provided an overview of the project and described the purpose of the meeting was to gain feedback on the typical sections and project documents based upon the goals and needs of the project.
 - b. JG reviewed the kick-off meeting minutes, including discussions on the implementation of bus stops and pads and the need for a dual bikeway along Bradley Boulevard.
- III. Project Status Update
 - a. MR began with a review of the environmental assessment report that supplemented the information provided by SHA's environmental assessment form covering the project. There are no wetlands within project limits. There are no Montgomery County historic districts or sites within the project area, while there is a listed historic district in the northern area of the project limits. MHT letter response is pending on the historic property
 - b. WRA prepared a tree assessment of trees within the R.O.W. and have noted specimen trees (greater than 30" caliper) and significant trees (greater than 24" caliper.), including the condition of each tree. The shared use path alignment

Bradley Boulevard (MD 191) Bikeway Project
Meeting #2 Minutes August 5, 2009

100 Edison Park Drive
4th Floor
Gaithersburg, MD 20878
Phone: 240-777-7223
Fax: 240-777-7277

Bruce Johnston, P.E.
Division Chief

Holger Serrano, P.E.
Deputy

Sogand Seirafi, P.E.
Planning & Design Chief

Tom M. Reise
Property Acquisition Chief

Tim Cupples
Construction Chief

Team Meeting: #2
Date: August 5, 2009
Time: 10:00 am–12:00 pm

Location:
SE Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Discuss Draft Purpose and Need, Draft Supplement to the EAF, and Draft Traffic Report. Present proposed concepts and typical sections.

Project:
Bradley Boulevard
Bikeway from Wilson Lane to Goldsboro Road, Facility Planning, Phase I

Project Overview:
This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk on Bradley Boulevard east of Goldsboro and an existing sidewalk on Wilson Lane and provide safe pedestrian access to several transit stops and Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

- would be designed to meander, to preserve as many of the specimen and significant trees as possible.
- c. CS inquired whether it would be possible to save the trees based upon the alternate #3 typical section.
 - d. JG responded that it would be difficult to do achieve with alternate #3.
 - e. CS inquired if there was a typical section that best reflected the master plan and it would be beneficial to reference that scheme to the master plan.
 - f. JG indicated that Alternate #3 was most closely aligned with the master plan.
 - g. AM requested that the typical sections be reordered so that Alternate #3 becomes Alternate #1 to reflect an order of most impact to least impact and most closely following the master plan to least.
 - h. PS requested noting impacts and requirements for plantings as part of typical sections.
 - i. GTN inquired whether swale shape illustrated in sections is representative of what would be installed and whether it is likely that the proposed SWM will fit in the right-of-way.
 - j. JG indicated that specific design requirements would be developed with the bikeway alignments and alternates. The type of BMP for stormwater management would dictate design with bio-swales and sand filters being most likely. Impacts to the south side of road would be minimized as R.O.W. is very limited. Impacts would be concentrated on north side of the road where there is more R.O.W. Underground SWM facilities may be necessary with an MOU for maintenance, if swales are not feasible.
 - k. GTN asked if the amount of treatment had been studied.
 - l. JG replied that SWM requirements will be developed with the concept alignments.
 - m. GTN advised that information/illustrations for the public can not be misleading or misrepresenting of what would be installed. Additional images to represent installed projects to more accurately represent the appearance of drainage swales.
 - n. PS asked how much time is needed to know what will be required for project.
 - o. JG responded that current SWM regulations prefer linear SWM facilities and this design would compliment this project well. Alternates #1 And #2 would be most feasible to achieve with #3 being the most difficult and determined through concept development
 - p. AM questioned the need to represent an option (Alt #1) that does not reflect the objectives of the master plan
 - q. JG replied that Alt #1 responded to the executive concern about the county making improvements to a state road. Alt #1 does not alter existing road while providing a shared use path and minimizing impacts to front yards.
 - r. AM expressed the concern over impacts to front yards and difference in cyclist interests and resident interests. AM preferred eliminating Alt#1 and reordering Alt #3 to Alt #1.
 - s. JG inquired whether another alternate should be created between the current Alt #2 and #3 by eliminating the sidewalk on the south side of the road. It was decided that the current Alt #2 and #3 are sufficient as the two options.
 - t. JG provided an overview of state standards for shoulder widths and asked if 11' lanes would be acceptable.
 - u. AM requested that the master plan standards be met.
 - v. CS preferred using 12' lanes.
 - w. MR affirmed that the minimum shoulder width would be 4' and a maximum of 6'.
 - x. JG expressed that wider shoulders may allow motorists to use the shoulders as a lane for bypassing left-turning vehicles, and pose a hazard to transit users and cyclists.
 - y. JG indicated that the dual use path would be 10' or 12' depending on the option, and narrowed to 8' at pinch points.
 - z. WM requested that the group review with upper management the elimination of Alt #1, as other options require modifications to a state road. Implementing option #2 and #3 requires a cooperative effort between the state and county and potentially establishes a precedent for the county to improve state roads.
 - aa. AM confirmed that they would review and get feedback on this issue.

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Team Meeting: #2
Date: August 5, 2009
Time: 10:00 am–12:00 pm

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Purpose: Discuss Draft Purpose and Need, Draft Supplement to the EAF, and Draft Traffic Report. Present proposed concepts and typical sections.

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- bb. WM advised that political and funding reasons may warrant retention of Alt #1.
- cc. PS inquired about an interim condition whereby the county builds the shared use path, and the state later widens the roadway.
- dd. WM suggested that if Alt#1 is selected, then the project be developed as interim (Alt#1) and ultimate (Alt#2 or #3). SWM facilities would be built to meet the ultimate.
- ee. JG added that to achieve the master plan objectives, a considerable amount of work must be done to the road to meet standards.
- ff. WM cautioned on showing what will not be built.
- gg. AM asked if any state projects for Bradley Blvd are in the works.
- hh. JG responded that it is unlikely unless it were to be widened to four lanes. Since there are no plans for road widening, the road may expect a mill and overlay at most. Widening the road for the project would likely necessitate addressing utility and drainage issues.
- ii. WM reinforced that road work will impact utilities.
- jj. AM affirmed that management will be consulted regarding providing improvements on a state road.
- kk. MR added that Alt #2 will be relatively easy to implement.
- ll. JG confirmed that there is adequate ROW, while Wilson Lane has a 2' shoulder and adding a turn lane is recommended there.
- mm. AM queried what precedence there is for improvements by the county of state roads.
- nn. CS replied that this has been done. He added that Council in the past did not want to do such improvements, but there has been a change in thinking.
- oo. GTN advised that enhancement funding for bicycle improvements may be sought for this project.
- pp. PS inquired if the funding source should be studied.
- qq. CS responded that the funding sources will be done in the next phase of work.
- rr. JG reiterated that it would be developed in next phase and would help with intersection improvements.
- ss. PS inquired if funding source is limited to spot improvements.
- tt. GTN replied that is was for entirety of projects.
- uu. PS requested that the typical sections highlight the differences between the alternatives by adding additional dimensions for improvements and continuous lengths of elements. She added that "varies" may need to be added on certain dimensions.
- vv. GTN inquired if the sidewalk requires a closed section
- ww. JG affirmed that is the case for the south side of the road due to limited ROW. He further added that Wilson Lane will be the most difficult area to include all recommendations.
- xx. AM inquired whether lighting on utility poles existed within project limits and whether to add if it did not currently include.
- yy. MR indicated that there is limited roadway lighting currently.
- zz. CS added that it is policy to add lighting to shared use projects.
- aaa. GTN requested adding pedestrian and road lighting to typical sections. In reviewing an image on the typical sections board, she inquired if gravel is standardly used in bioswales.
- bbb. JG responded that it is, while different color gravel is possible.
- ccc. MR provided an example at River Rd in Montgomery County.
- ddd. PS requested adding other examples of bioswales and locations.
- eee. GTN indicated that the Capital Crescent Trail is 10' wide with 2' gravel shoulders.
- fff. WM suggested Montrose Parkway as another example of a 10' wide dual use path.
- ggg. JG added that plantings will be illustrative of typical plantings for the state and county.
- hhh. CS requested that plantings be represented from county/state approved lists.
- iii. JG added that community meeting graphics will expand to a board with sections and a board with representative images.

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Team Meeting: #2
Date: August 5, 2009
Time: 10:00 am–12:00 pm

Location:
SE Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Discuss Draft
Purpose and Need, Draft
Supplement to the EAF,
and Draft Traffic Report.
Present proposed
concepts and typical
sections.

Project:
Bradley Boulevard
Bikeway from Wilson Lane
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Facility Planning, Phase I

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Facility Planning of the
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- jjj. GTN suggested eliminating graphic scale if not drawn to scale.
- kkk. WM indicated that community meeting graphics will show a typical plan for typical section alternates.
- lll. MR continued with report review and added that concept will be developed to preserve significant and champion trees. Environmental, historic and wildlife response letters are pending.
- mmm. BK provided an overview of the Traffic Report. During the process of information gathering, crash data was shared. No crashes involving pedestrians have been reported during the five year review period, while 3 bicycle related accidents were noted.
- nnn. BK indicated that traffic analysis for Wilson Lane noted left turns as problematic and recommended separate left turn lanes along both approaches of Bradley Boulevard be implemented.
- ooo. CS inquired whether this recommendation warrants extending project limits through the intersection of Wilson and Bradley to other side.
- ppp. AM agreed that extension is warranted.
- qqq. BR reviewed recommendations for crosswalks. It is recommended to maintain two crosswalks at Wilson Lane, one at Brite Drive, and to add two crosswalks at Goldsboro Road.
- rrr. CS requested a collision diagram at Wilson Lane intersection be included in the report.
- sss. BR continued by discussing crash data for right on red at Wilson for five year period may warrant eliminating right on red.
- ttt. CS indicated that concurrence from the state would be required and requested forwarding study onto the state.
- uuu. GTN shared that visibility of pedestrians on shoulders was limited within heavy foliage areas.
- vvv. AM added that the public felt unsafe using shoulders for pedestrian access.
- www. PS reviewed public comments received for shared use path and indicated that bus stops have added a new dimension to discussion.
- xxx. BK continued with recommendations for Goldsboro Road. Currently two lanes merge into one lane through the intersection. Lane markings are not consistent with state standards. Improved signs, expanding two lanes through intersection are recommended.
- yyy. CS commented that this area is the only along the study limits with sidewalk existing.
- zzz. GTN inquired as to the shoulder width of WB Bradley Boulevard at Goldsboro Road.
- aaaa. JG responded that 9' was the shoulder width
- bbbb. CS shared that expanding the merging lanes through the intersection is an approved project.
- cccc. GTN stated that the law requires bikes to use the travel lanes where no shoulder exist, such as Bradley Boulevard east of Goldsboro Road.
- dddd. CS reviewed difficulty with modifying turn lanes along Bradley EB to improve cyclist safety for turns and through travel.
- eeee. GTN inquired if width of the road posed a problem for implementing the approved alternative in this area.
- ffff. CS added that some re-striping has already occurred at intersection.
- gggg. GTN requested that the area be investigated for bicycle safety.
- hhhh. BK continued with recommendations of exclusive left turn signal light phasing for WB left turning traffic to improve safety. It was noted that this change will increase delays and queues, and that existing queues sometimes back up through the Glenbrook Road intersection.
- iiii. GTN inquired if additional sidewalk was considered.
- jjjj. CS indicated that utilities pose a problem in the area.
- kkkk. MR indicated that sidewalk addition feasibility will be reviewed.
- llll. GTN requested that bike lanes be reviewed against future vehicle traffic improvements.

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Tim Cupples
Construction Chief

Team Meeting: #2
Date: August 5, 2009
Time: 10:00 am–12:00 pm

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Gaithersburg, MD 20878

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mmmm. MR provided an overview of Purpose and Need report and reviewed contributing elements of synagogue, schools, Ride-On Bus Route 36 with nine stops in study area, proximity to Bethesda CBD and medical center. He reviewed adjacent sidewalk system around study area.

nnnn. AM requested graphic improvements to Connectivity Map to increase visibility of illustrated elements. AM requested that the Bethesda Trolley Trail be labeled. AM requested that the "paper" right-of-way path on the south side of Bradley Boulevard across from Devon Road be labeled.

oooo. GTN inquired about walk limits (walking shed) for nearby schools.

pppp. AM provided that the walk limits are a 2 mile radius for high schools, 1.5 mile radius for middle schools and a 1 mile radius for elementary schools before buses will be provided.

qqqq. JG added that safe walking provisions are also a requirement.

rrrr. GTN requested that this information be researched and added to report.

ssss. AM asked PS to inquire with school contact Mary Pat Wilson as to policy.

tttt. AM inquired whether illustrating pedestrian facilities promoted or did not promote projects merit.

uuuu. JG added that disconnect of current conditions supports project merit in connecting to pedestrian systems to north and south.

vvvv. MR shared that the master plan recommends improved safety of users and improved access to adjacent areas.

www. AM commented that the Purpose and Need document was done well and appreciated inclusion of recommendations in document to support merits of project.

xxxx. GTN requested labeling Suburban Hospital on plans.

yyyy. AM affirmed inclusion of existing sidewalk inventory as part of connectivity document. AM requested the sidewalks should be shown as continuous lines, rather than with breaks for driveways.

zzzz. GTN requested adding state route number to documents and labeling trails on plan.

aaaa. PS shared that the county has received correspondence and requests to expand the project limits to include the whole master plan area from Persimmon Tree Road to Wisconsin Avenue. She requested that the graphics illustrate the future limits of improvements to Bradley Boulevard under the master plan.

IV. Proposed Concepts – Discussed during the Project Status Update.

V. Next Steps

a. JG indicated for the upcoming public meeting, illustrative concept plans will be provided. WRA will also provide the newsletter to introduce the project and advertise the public meeting.

b. JG suggested that the meeting provide work stations focused on up to three main areas. The concept maps would be supported with the typical sections at focus areas.

c. JG recommended providing public with post it notes to write down their comments. WRA would consolidate comments for subsequent meeting notes.

d. JG inquired as to location for meeting as presentation possibilities are impacted by facility.

e. AM indicated that potential locations are Carderock or Bethesda Community Schools. AM requested that PS inquire with community leaders for a suggested location.

f. AM requested that documents be made available prior to and following meeting for public review and comment via county website.

g. JG inquired if improvements for the Seven Locks Road Project were consistent throughout or did they vary.

h. AM recalled that the road had a consistent section throughout.

i. CS shared that in this project area residents do not recognize the ROW/property limits.

j. AM counseled that sections remain fairly generic.

k. JG indicated that plan graphics will focus on project area and sections will be provided at key areas.

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Team Meeting: #2
Date: August 5, 2009
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- l. GTN shared that there will be more interest in the Wilson Lane intersection area.
- m. PS suggested that the two intersections be illustrated on different plans at separate stations at the meeting.
- n. AM asked if traffic signal synchronization will be shown at the public meeting.
- o. PS indicated that synchronization is not needed to be shown for a bicycle facility project.
- p. AM indicated that newsletter provide background of project and include a comment response card.
- q. CS commented that examples can be provided.
- r. AM advised that meeting intent is not for voting, but for conveying information to the public. The Department reserves ultimate decision of project and takes into consideration public comments.

VI. Project Schedule

- a. JG indicated that a late September/early October meeting be scheduled.
- b. PM stated that the reports will be finalized by September 1.
- c. AM indicated location and date of meeting is required in newsletter. She anticipated that concepts will be provided in early September for review and a public meeting in mid October to early November.
- d. AM reiterated that a response to inclusion of Alt #1 and information of school walk sheds will be provided to WRA.
- e. JG requested study review comments by all team members be provided to WRA by August 24.
- f. JG noted that the finalized report will be provided by September 1 with a sample of newsletter.
- g. JG suggested potential community dates of Oct 20, 21, 27, 28, Nov 3,4.
- h. AM indicated that study team will need to meet to review community meeting materials.
- i. JG suggested meeting dates of Sept 29, 30 or Oct 6,7
- j. PS noted that crosswalk locations need to be reviewed prior to public meeting.
- k. CS indicated that standards are to be met and reviewed with group at next meeting.
- l. JG concluded meeting that inclusion of bus stop supports project merits for ADA considerations and inquired if not including a sidewalk on the south side of road would be acceptable for ADA compliance.
- m. GTN shared that pedestrians commonly use road for access on residential streets. GTN requested labeling ROW on plans.



DTE

planning design construction



Division of Transportation Engineering

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Construction Chief

Team Meeting: #3
Date: October 13, 2009
Time: 10:30 am – 12:00 pm

Location:
NE Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Present and discuss the proposed alternates including stormwater management. Discuss the upcoming public meeting.

Project:
Bradley Boulevard
Bikeway from Wilson Lane
to Goldsboro Road,
Facility Planning, Phase I

Project Overview:
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Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

Date: October 16, 2009

Date of Meeting: October 13, 2009

Time: 10:30 a.m.

Location: NE Conference Room
100 Edison Park Dr, 4th Floor
Gaithersburg, MD 20878

Project: Bradley Boulevard (MD 191) Improvements Project
From Goldsboro Road to Wilson Lane

Attendees:

David Kuykendall (DK)
Aruna Miller (AM)
Dennis Robinson (DR)
Pat Shepherd (PS)
Bob Simpson (BS)
Carl Starkey (CS)
Gail Tait-Nouri (GTN)
Larry Cole (LC)
Cherian Eapen (CE)
Lee Winestone (LW)
Jason Cosler (JC)
Jim Guinther (JG)
Mark Roberts (MR)

Organization

MCDOT-DPS
MCDOT-DTE
MCDOT – Property Acquisition
MCDOT-DTE
MCDOT – Director's Office
MCDOT-Traffic
MCDOT-DTE
MNCPPC-TP
MNCPPC-TP
Ride On
WR&A
WR&A
WR&A

The third meeting for the subject project was held on October 13, 2009. The following is a summary of the items discussed:

- I. Introductions
 - a. Project team members introduced themselves.
 - b. PS displayed the project newsletter that has been developed and mailed out to the residents. PS also invited the team members to the upcoming public meeting on October 27, 2009 from 7:00 PM to 9:00 PM at the Bethesda-Chevy Chase Regional Services Center, Conference Room A.
- II. Purpose of Meeting
 - a. JG described that the purpose of the meeting was to discuss the proposed alternates including stormwater management and to discuss the requirements for the upcoming public meeting.
- III. Proposed Concepts
 - a. AM requested the alternates be renamed and reordered. A discussion took place on this subject also later in the meeting. The following alternate titles were chosen:
 - Alternate 1 - No-Build [currently labeled Existing]
 - Alternate 2 - Master Plan [currently labeled Alternate 2 with no sidewalk on the south side]
 - Alternate 3 - Enhanced Master Plan [currently labeled Alternate 1 with a sidewalk on the south side]

Bradley Boulevard (MD 191) Improvements Project
Meeting #2 Minutes October 13, 2009

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Team Meeting: #3
Date: October 13, 2009
Time: 10:30 am–12:00 pm

Location:
NE Conference Room
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Purpose: Present and discuss the proposed alternates including stormwater management. Discuss the upcoming public meeting.

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- b. LC inquired as to how the widths of the various elements of the typical sections were chosen. JG stated that the typical section element widths were decided by the study team in previous meetings and in accordance with SHA, Montgomery County, and anticipated level of service requirements.
- c. LC questioned why the sidewalk is shown as 5' wide with no buffer. LC requested that a buffer be included or the sidewalk be shown 7' wide where no buffer is possible. Need to follow SHA guidelines. JG stated that WR&A would include buffers or a 7' wide sidewalk on the south side wherever possible.
- d. PS requested that an additional symbol be used on the plans to show significant trees that the team believes will be impacted by construction. All agreed the symbol should be a different color, not red, and no cross-outs of trees. WR&A agreed to add this symbol to the plans. The team believes greater transparency is needed for this project. The plans should include a disclaimer that the actual tree impacts will be determined in final design.
- e. MR discussed the alternate plans including changes to the roadway alignment to accommodate bike lanes, the sidewalk on the south side of road, and the shared-use path on the north side. Some utility poles are impacted with these alternates. The shared-use path generally is located about 12' from the roadway to allow about 6' of clear space from the road to the pole and 3' from the pole to the path. LC requested that dimensions to the utility pole be added to the typical sections.
- f. JC discussed stormwater management for the alternates. The stormwater management concept consists of bioswales. This project will be subject to the new MDE regulations under the 2007 SWM Act. JC stated that pervious pavement should be strongly considered for the shared-use path in order to meet the new regulations. This is especially true of the enhanced alternate and may actually be required for approval. DK stated that quality requirements must be met under the new regulations, while quantity requirements can possibly be relaxed.
- g. LC requested that the right-of-way lines be checked since some of them appear to be shifted off-center of the side roads. Also it was decided that the right-of-way lines should be more visible.
- h. JG suggested that one bus stop on the south side should be investigated since it is difficult to access today. The bus stops symbols on the drawings should be checked as some of them appear to be out of place. The team agreed that with better access provided by this project, some bus stops could potentially be eliminated. Ride on will investigate this possibility.
- i. GTN requested that the path and sidewalk at the west end of the project be terminated at Wilson Lane.
- j. A discussion occurred regarding the terminus of the shared-use path at the east end of the project. PS suggested that the path should extend to Goldsboro Road. JG mentioned that this would require more right-of-way. A suggestion was made to narrow the westbound lanes in this area to avoid any right-of-way takes. CS stated that the lanes should not be narrowed and that SHA is currently improving the lanes at this intersection. The team decided that for the Master Plan alternate, the path should end at Barrett Lane, with a sidewalk continuing on to Goldsboro. For the Enhanced Master Plan alternate, the path will extend to Goldsboro and require some right-of-way purchase.
- k. LC suggested that the project should extend to Little Falls Parkway to provide better connectivity. Since the project limits have been established for this study and since the character of the roadway changes significantly at Goldsboro Road, the team agreed to keep the project limits as currently delineated.
- l. AM expressed the concern that residents on the south side of the road would strongly prefer the alternate with no sidewalk. She also is concerned that this alternate does not go far enough. JG stated that this alternate does comply with the master plan. The team decided to reorder and rename the alternates to emphasize that this option is the master plan alternate. CE suggested that the option with a sidewalk then becomes the enhance master plan alternate. BS questioned whether there was a shared use path elsewhere along Bradley Boulevard. The team noted that there is shared-use path along the north side of Bradley Boulevard in a section

Bradley Boulevard (MD 191) Improvements Project
Meeting #2 Minutes October 13, 2009

to the west of this project, which provides precedent for having the shared-use path on the north side at this project. This will be noted at the public meeting.

- m. The team made more suggestions for the alternate plans:
- Make the utility poles easier to see
 - Make the BMPs easier to see
 - Show the existing sidewalk at the east end of the project with a different symbol than the proposed
 - Add a note stating that resurfacing of Bradley Boulevard is included within the limits of the project.
- n. The precedent images display should include better images of BMPs including the one at MD 190 in Potomac. Also the spelling of Potomac should be corrected.

IV. Public Meeting

- a. PS stated that the public meeting would begin with a PowerPoint presentation. PS or AM will present. The PowerPoint should include a slide that demonstrates the amount of automobile and bicycle traffic on Bradley Boulevard. All of the study team members are invited. At a minimum PS, GTN, AM, CS, MR, JG, RK (Bob Klasen – WR&A Traffic), and JTT (JoAnn Trach Tongson from MRA) will attend the public meeting. County and state delegates will be invited to the public meeting.
- b. WR&A will provide name tags for all attendees including all study team members. WR&A will provide 90 copies of 11"x17" typical sections as handouts. The PowerPoint presentation and the newsletter will also be handouts available at the meeting.
- c. The public meeting displays should be posted on the project website the morning of the public meeting. WR&A and MRA should provide two full size copies of each display. One of each will be board mounted for display on easels. These will return to MCDOT. Another copy should be provided but not mounted. These will remain at the Bethesda-Chevy Chase Regional Services Center for public use.

V. Next Steps

- a. The next steps for the project are to prepare for and conduct the public meeting. All comments from the meeting will be gathered and considered for the evolving concepts.

VI. Project Schedule

- a. The public meeting will occur on October 27, 2009 from 7:00 PM to 9:00 PM at the Bethesda-Chevy Chase Regional Services Center, Conference Room A.
- b. The next study team meeting will occur on December 8, 2009 at 10:00 AM.

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Phone: 240-777-7223
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Holger Serrano, P.E.
Deputy

Sogand Seirafi, P.E.
Planning & Design Chief

Tom M. Reise
Property Acquisition Chief

Tim Cupples
Construction Chief

Team Meeting: #3
Date: October 13, 2009
Time: 10:30 am–12:00 pm

Location:
NE Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Present and discuss the proposed alternates including stormwater management. Discuss the upcoming public meeting.

Project:
Bradley Boulevard
Bikeway from Wilson Lane
to Goldsboro Road,
Facility Planning, Phase I

Project Overview:
This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk on Bradley Boulevard east of Goldsboro and an existing sidewalk on Wilson Lane and provide safe pedestrian access to several transit stops and Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231



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Division Chief

Holger Serrano, P.E.
Deputy

Sogand Seirafi, P.E.
Planning & Design Chief

Tom M. Reise
Property Acquisition Chief

Tim Cupples
Construction Chief

Team Meeting: #4
Date: December 9, 2009
Time: 1:00 pm–3:30 pm

Location:
SE Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Discuss the Oct. 27 Public Meeting comments and the proposed concepts and typical sections.

Project:
Bradley Boulevard
Bikeway from Wilson Lane
to Goldsboro Road,
Facility Planning, Phase I

Project Overview:

This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk on Bradley Boulevard east of Goldsboro and an existing sidewalk on Wilson Lane and provide safe pedestrian access to several transit stops and Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

Date: December 15, 2009

Date of Meeting: December 9, 2009

Time: 1:00 p.m.

Location: SE Conference Room
100 Edison Park Dr, 4th Floor
Gaithersburg, MD 20878

Project: Bradley Boulevard (MD 191) Improvements Project
From Goldsboro Road to Wilson Lane

Attendees:

Jeff Duncel (JD)
Kyle Liang (KL)
Aruna Miller (AM)
Dennis Robinson (DR)
Pat Shepherd (PS)
Bob Simpson (BS)
Carl Starkey (CS)
Gail Tait-Nouri (GTN)
Claudine Myers (CM)
Jim Guinther (JG)
Mark Roberts (MR)

Organization

MCDOT
MCDOT
MCDOT-DTE
MCDOT – Property Acquisition
MCDOT-DTE
MCDOT – Director's Office
MCDOT-Traffic
MCDOT-DTE
SHA – District 3
WR&A
WR&A

The fourth meeting for the subject project was held on December 9, 2009. The following is a summary of the items discussed:

- I. Introductions
 - a. Project team members introduced themselves.
- II. Purpose of Meeting
 - a. JG and PS described that the purpose of the meeting was to discuss the public comments that have been received and to discuss what proposed alternatives should be developed for the next team and public meetings.
- III. Review Public Comments
 - a. PS and MR summarized the public comments. The team has received about 140 public comments so far including many that sent a copy to the County Executive. About two-thirds of the comments are in favor of the project. About one-third of the comments are opposed to the project or would prefer the construction of just a sidewalk. Most of those who are opposed live directly along Bradley Boulevard. PS has been responding to many of the comments.
- IV. Proposed Concepts
 - a. A discussion took place regarding the proposed alternatives that should be developed for the next team and public meeting.
 - b. The team inquired about the status of the SHA resurfacing project and the SHA restriping project at Goldsboro Road. The resurfacing project is underway. In October the roadway was milled. In November the travel portion of the roadway was resurfaced. The shoulders have not yet been resurfaced. CM will inquire about the status of completing this project. The restriping at the Goldsboro Road Intersection occurred with the resurfacing project. CM will also investigate the

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Deputy

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Planning & Design Chief

Tom M. Reise
Property Acquisition Chief

Tim Cupples
Construction Chief

Team Meeting: #4
Date: December 9, 2009
Time: 1:00 pm–3:30 pm

Location:
SE Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Discuss the public comments and the proposed alternatives to be developed.

Project:
Bradley Boulevard
Bikeway from Wilson Lane
to Goldsboro Road,
Facility Planning, Phase I

Project Overview:
This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk on Bradley Boulevard east of Goldsboro and an existing sidewalk on Wilson Lane and provide safe pedestrian access to several transit stops and Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

Bradley Boulevard (MD 191) Improvements Project
Meeting #4 Minutes December 9, 2009

timing of the resurfacing project versus water and gas utility projects that are ongoing in the area.

- c. DR inquired whether the homeowners along Bradley Boulevard obtained permits to construct fences, entranceways, and landscaping on SHA right-of-way or if these are just encroachments in the right-of-way. CM will investigate, however records of permits only extend back a certain amount of time. This information will help MCDOT have a better negotiating point with the homeowners.
- d. AM discussed the direction that has been received from upper management. They would like the team to look at alternatives with sidewalk only on the north side for open and closed sections. The team should also look at placing the bioswale behind the sidewalk or shared use path. JG explained that a closed section would increase the construction cost since the bioswales may no longer be an acceptable solution for stormwater management. The bioswales between the path and roadway also allow space for the utility poles. The team decided to not study a closed section but WR&A will develop an order of magnitude cost estimate and a write up of the implications of choosing a closed section for this project as well as placing bioswales behind the sidewalk.
- e. The team decided that the width of the shared use path on any alternative should be 8'. A discussion took place on the proper width for a sidewalk. Based on the classification of the roadway, the road code states that a sidewalk should be 5'. The team also feels that a 3' buffer should be used on the south side in conjunction with the 5' sidewalk to provide room for mailboxes and signs and to allow for a better pedestrian experience. Where a 3' buffer can't be provided, a 7' sidewalk should be used. The team also agreed that all on road bike lanes should be 4' for open section and 5' for closed section for all alternatives with on road bike lanes.
- f. PS, AM, and BS discussed the various proposed alternatives. Upper Management would like an alternative that includes only a sidewalk on the north side with no on road improvements to show the adjacent property owners exactly what they are requesting. The team agreed this should be one of the alternatives and to label it 4B. The team debated the merits of including a similar alternative with a sidewalk on the north side and on road bike lanes. AM was not in favor with the concern that this alternatives could easily become the chosen alternative. The team stressed that this could happen but that this alternative would most likely not be favored by the team. In the end it was decided to include this alternative and label it 4A. Alternative 2 will include an 8' shared use path on the north side and on road bike lanes. Alternative 3 will include an 8' shared use path on the north side, on road bike lanes, and a 5' sidewalk with a 3' buffer on the south side. The alternative 4B should locate the sidewalk out far enough such that the on road bike lanes could be included at a later time without having to relocate the sidewalk. If in the future a shared use path were added, the original sidewalk could be removed; it doesn't need to be salvaged.
- g. The team agreed that all sidewalks should follow SHA's ADA guidelines and that all shared use paths should follow AASHTO shared use path criteria.
- h. A question was raised as to whether SHA has any long range plans to widen Bradley Boulevard to four lanes. CM and others thought this is unlikely. The team also feels the public should be aware that building a shared use path along Bradley Boulevard will make it more difficult and unlikely for SHA to widen the road later. *After the meeting MR confirmed that widening of MD 191 is not on the Highway Needs Inventory for SHA.*
- i. JG inquired whether the team thought the project should be extended to the east from Goldsboro Road to Glenbrook Road. Due to the numerous requests from the public, all agreed this extension should be included. MR asked whether to consider eliminating a parking lane along Bradley Boulevard from Glenbrook to Goldsboro to have space for a shared use path. DR pointed out from experience driving this corridor that parking in this area is infrequent. It was also pointed out that all of the homes in this block have driveways and off street parking. The team agreed this option could be investigated.

Bradley Boulevard (MD 191) Improvements Project
Meeting #4 Minutes December 9, 2009

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Sogand Seirafi, P.E.
Planning & Design Chief

Tom M. Reise
Property Acquisition Chief

Tim Cupples
Construction Chief

Team Meeting: #4
Date: December 9, 2009
Time: 1:00 pm–3:30 pm

Location:
SE Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Discuss the
public comments and
the proposed alternatives
to be developed.

Project:
Bradley Boulevard
Bikeway from Wilson Lane
to Goldsboro Road,
Facility Planning, Phase I

Project Overview:
This project provides for
Facility Planning of the
Master Planned DUAL
bikeway along Bradley
Boulevard (between
Wilson Lane and
Goldsboro Road) which is
on-road bike lanes as
well as an off-road
shared use path. The
project will also provide a
connection between the
existing sidewalk on
Bradley Boulevard east of
Goldsboro and an
existing sidewalk on
Wilson Lane and provide
safe pedestrian access to
several transit stops and
Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

V. Next Steps

- a. WR&A will prepare the additional alternatives and prepare presentation material for the next team and public meeting. The next public meeting will be a workshop format with no formal presentation.

VI. Project Schedule

- a. The next study team meeting will occur in late January or early February. PS will gather feedback on availability and send out an invitation.
- b. The next public meeting will occur in late February or early March about four weeks after the team meeting.



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Property Acquisition Chief

Tim Cupples
Construction Chief

Team Meeting: #5
Date: February 17, 2010
Time: 1:00 pm–3:30 pm

Location:
NW Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Present and discuss the proposed alternates. Discuss the upcoming public meeting.

Project:
Bradley Boulevard
Bikeway from Wilson Lane
to Goldsboro Road,
Facility Planning, Phase I

Project Overview:
This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk on Bradley Boulevard east of Goldsboro and an existing sidewalk on Wilson Lane and provide safe pedestrian access to several transit stops and Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

Date: March 2, 2010

Date of Meeting: February 17, 2010

Time: 1:00 p.m.

Location: NW Conference Room
100 Edison Park Dr, 4th Floor
Gaithersburg, MD 20878

Project: Bradley Boulevard (MD 191) Improvements Project
From Goldsboro Road to Wilson Lane

Attendees:

Ken Hartman (KH)
Pat Shepherd (PS)
Bob Simpson (BS)
Carl Starkey (CS)
Gail Tait-Nouri (GTN)
Lee Winestone (LW)
Angel Tao (AT)
Jim Guinther (JG)
Mark Roberts (MR)

Organization

MCDOT-BCC Regional Service Center Director
MCDOT-DTE
MCDOT – Director's Office
MCDOT-Traffic
MCDOT-DTE
Ride On
SHA – District 3
WR&A
WR&A

The fifth meeting for the subject project was held on February 17, 2010. The following is a summary of the items discussed:

- I. Introductions
 - a. Project team members introduced themselves.
- II. Purpose of Meeting
 - a. PS described that the purpose of the meeting was to discuss the proposed alternatives to prepare for the upcoming public meeting. She also summarized the study progress to date. KH then described the key preferences and objections that the surrounding communities have for the study. The South Bradley Civic Association is in favor of bicycle facilities and some sort of a pedestrian connection. Some would prefer a sidewalk and some would prefer a shared-use path. Those who live directly on Bradley Boulevard fear this project would be the first part toward an eventual four lane highway while others are concerned with tree impacts and drainage improvements. They also don't like being responsible for snow removal and they point out that the original petition was for a sidewalk only. The Kenwood Park Civic Association is in favor of the project.
- III. Proposed Concepts
 - a. A discussion took place regarding the proposed alternatives that have been developed for the next public meeting/workshop.
 - b. A discussion took place regarding alternates 4A and 4B. Some in the team are concerned that Alternate 4B does not meet the needs of the project and should be dropped. SHA has not placed the permanent pavement markings from the recent resurfacing project but will do so within a month. SHA is willing to restripe this section of Bradley Boulevard as 12' or 11' lanes. The team generally favored 11' lanes.

Bradley Boulevard (MD 191) Improvements Project
Meeting #5 Minutes February 17, 2010

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Deputy

Sogand Seirafi, P.E.
Planning & Design Chief

Tom M. Reise
Property Acquisition Chief

Tim Cupples
Construction Chief

Team Meeting: #5
Date: February 17, 2010
Time: 1:00 pm–3:30 pm

Location:
NW Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Present and discuss the proposed alternates. Discuss the upcoming public meeting.

Project:
Bradley Boulevard
Bikeway from Wilson Lane to Goldsboro Road,
Facility Planning, Phase I

Project Overview:
This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk on Bradley Boulevard east of Goldsboro and an existing sidewalk on Wilson Lane and provide safe pedestrian access to several transit stops and Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

- c. A discussion took place as to whether the existing road could remain untouched. JG cited the fact that portions of the existing roadway should be removed to have the project be more favorable to MDE and to avoid additional impacts due to shifting the north side sidewalk or bike path farther out. Also the team generally agreed that any sidewalk or roadway improvements would also require drainage improvements. Depending on the alternate and the use of pervious pavement, the drainage improvements may be limited to a ditch or may require a ditch with bioswales.
- d. PS discussed the community's preference for an interim solution which could include additional or improved pedestrian crossings. MR displayed the three locations studied for potential pedestrian refuge islands. These are at Brite, Devon, and Durbin. Any of these could be implemented on their own. Brite and Durbin could be implemented together. The team would prefer to drop Devon as a potential location.
- e. GTN revealed that any project that includes on street bike lanes would also include no parking signs. KH pointed out that while parking is infrequent, residents do use the existing shoulder for parking during parties and other large gatherings. The team all agreed removing parking from the roadway would not be favorable with the community. GTN stated that instead of bike lanes, the roadway could be considered to have bikeable shoulders. This would allow parking to remain.

Side Note: Following the meeting it was noted that the Master Plan recommends shared roadways as opposed to dedicated bike lanes. Therefore parking would not be removed/prohibited on the shoulder.

- f. A debate then ensued whether to include Alternates 4A and 4B or to just have one Alternate 4. The team decided that any alternate 4 should not impact the road except for some pavement removal.

Side Note: Following the meeting PS discussed Alternates 4A and 4B with Aruna and upper management. Upper management had WR&A investigate an alternate whereby a sidewalk is included on the south side of the roadway without impacting the roadway. WR&A prepared a memo describing the impacts of this alternate, as well as presenting an alternate where a south side sidewalk is placed along but not over the existing right-of-way on the south side.

IV. Next Steps

- a. JG discussed the format of the upcoming public meeting/workshop. The public meeting will be a workshop format. The team preferred having two sets of the roll plans available to help disperse any crowds from forming in one location. KH stated that we need to have clear direction on how we are going to layout the meeting and provide flow. PS stated that she will visit the school to get a sense of how the cafeteria is laid out. JG/MR will use this information to provide direction via email for review and comment.
- b. PS will discuss the alternates with Aruna and upper management. Based on these discussions, WR&A will revise the typical sections for the newsletter. The newsletter must be printed and distributed shortly for the upcoming public meeting.
- c. The Team needs to make it clear to the public that this project is within the public right-of-way and not impacting private property
- d. BS also stated that the concern with impacting the character of the corridor is going to happen with any option other than No Build.
- e. JG handed out a document outlining the 10 Questions about the Bradley Boulevard Project. The team was requested to review the questions and responses and provide feedback by March 1st. This will be an insert that is included with the public meeting handout.

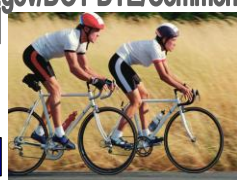
V. Project Schedule

- a. The next public meeting/workshop will be on March 10, 2010 at Thomas Pyle Middle School.



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Tim Cupples
Construction Chief

Team Meeting: #6
Date: October 20, 2010
Time: 1:00 pm–3:00 pm

Location:
NW Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Present and discuss the proposed alternates. Discuss the upcoming public meeting.

Project:
Bradley Boulevard
Bikeway from Wilson Lane
to Goldsboro Road,
Facility Planning, Phase I

Project Overview:

This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk on Bradley Boulevard east of Goldsboro and an existing sidewalk on Wilson Lane and provide safe pedestrian access to several transit stops and Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

Date: November 10, 2010

Date of Meeting: October 20, 2010

Time: 1:00 p.m.

Location: NW Conference Room
100 Edison Park Dr, 4th Floor
Gaithersburg, MD 20878

Project: Bradley Boulevard (MD 191) Improvements Project
From Goldsboro Road to Wilson Lane

Attendees:

Pat Shepherd (PS)
Aruna Miller (AM)
Ken Hartman (KH)
Carl Starkey (CS)
Kyle Liang (KL)
Gail Tait-Nouri (GTN)
David Anspacher (DA)
Lee Winestone (LW)
Angel Tao (AT)
Jim Guinther (JG)
Mark Roberts (MR)

Organization

MCDOT-DTE
MCDOT-DTE
MCDOT-BCC Regional Service Center Director
MCDOT-Traffic
MCDOT-Traffic
MCDOT-DTE
MNCPPC
Ride On
SHA – District 3
WR&A
WR&A

The sixth meeting for the subject project was held on October 20, 2010. The following is a summary of the items discussed:

- I. Introductions
 - a. Project team members introduced themselves.
- II. Purpose of Meeting
 - a. PS described that the purpose of the meeting was to discuss the proposed alternatives, to discuss the project newsletter, and to prepare for the upcoming public meeting. She also summarized the study progress since the last public meeting.
- III. Proposed Concepts
 - a. It was pointed out that alternates 2 and 3 from the last public meeting are still on the table and should be presented at the public meeting. However the new alternates 4A, 4B, and 4C were developed to scale down some of the cross section elements. The sections and impacts for alternates 2 and 3 will be presented at the public meeting.
- IV. Public Workshop
 - a. A discussion took place regarding whether the newsletter should contain typical sections or just text. Some preferred that sections be added to prepare people for the public meeting while others were concerned that showing sections would get people against the project even before the meeting. After the meeting the newsletter was sent out with typical sections.
 - b. A discussion took place regarding the importance of drainage on the project. All agreed that any trail project should improve drainage. It was also discussed that

Bradley Boulevard (MD 191) Improvements Project
Meeting #5 Minutes February 17, 2010

the swale option is preferred as it improves drainage while satisfying the latest SWM regulations.

- c. A discussion took place regarding the format of the public meeting. It was decided that primarily the meeting should be in the workshop format with displays for the plans, sections, renderings, and other miscellaneous displays. At the beginning of the meeting, Pat or Aruna will give a brief presentation with no slide show. Topics of this presentation will include a history of the study, the importance of drainage on the project, and the latest alternates.

V. Next Steps

- a. The team is invited to assist at the public workshop.
- b. WR&A will work with Pat to develop Newsletter information and FAQ's for public use and posting on the project website..

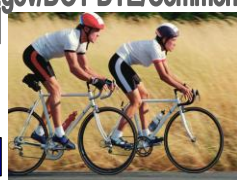
VI. Project Schedule

- a. The public meeting/workshop will be held from 7:00-9:00 on November 10, 2010 at Thomas Pyle Middle School.



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Deputy

Sogand Seirafi, P.E.
Planning & Design Chief

Tom M. Reise
Property Acquisition Chief

Tim Cupples
Construction Chief

Team Meeting: #7
Date: February 2, 2011
Time: 1:00 pm–3:00 pm

Location:
NW Conference Room
100 Edison Park Dr, 4th Fl
Gaithersburg, MD 20878

Purpose: Present and discuss the proposed alternates. Discuss the upcoming public meeting.

Project:
Bradley Boulevard
Bikeway from Wilson Lane
to Goldsboro Road,
Facility Planning, Phase I

Project Overview:

This project provides for Facility Planning of the Master Planned DUAL bikeway along Bradley Boulevard (between Wilson Lane and Goldsboro Road) which is on-road bike lanes as well as an off-road shared use path. The project will also provide a connection between the existing sidewalk on Bradley Boulevard east of Goldsboro and an existing sidewalk on Wilson Lane and provide safe pedestrian access to several transit stops and Bethesda's CBD.

Project Manager
Patricia D. Shepherd
Phone: 240-777-7231

Date: February 4, 2011

Date of Meeting: February 2, 2011

Time: 1:00 p.m.

Location: NW Conference Room
100 Edison Park Dr, 4th Floor
Gaithersburg, MD 20878

Project: Bradley Boulevard (MD 191) Improvements Project
From Goldsboro Road to Wilson Lane

Attendees:

Pat Shepherd (PS)
Hwang, Gwo-Ruey (Greg) (GH)
Dennis Robinson (DR)
Ken Hartman (KH)
Bob Simpson (BS)
Carl Starkey (CS)
Gail Tait-Nouri (GTN)
Cherian Eapen (CE)
Jim Guinther (JG)
Mark Roberts (MR)

Organization

MCDOT-DTE
MCDOT-DTE
MCDOT – Property Acquisition
MCDOT-BCC Regional Service Center Director
MCDOT – Director's Office
MCDOT-Traffic
MCDOT-DTE
MNCPPC
WR&A
WR&A

The seventh meeting for the subject project was held on February 2, 2011. The following is a summary of the items discussed:

- I. Introductions
 - a. Project team members introduced themselves.
- II. Purpose of Meeting
 - a. PS described that the purpose of the meeting was to discuss citizen comments, to determine the recommended alternative, and to decide on the next steps.
- III. Review Public Comments
 - a. A total of 84 comments have been received from the public since the meeting on Nov. 10, 2010. These comments came in by comment card, letter, e-mail, and from the blog. The supportive comments outweigh the opposition comments 3 to 1. This is an increase from the 2009 public meeting after which the comments were 2 to 1 in favor. The team discussed the common opposition points and appropriate responses. Many of those opposed say that the project will destroy too many trees and change the character of the neighborhood. MCDOT will strive to impact as few trees as possible during final design by using various tree save measures. Another point of opposition is that the bioswales and ditches will degrade the neighborhood aesthetics. During final design efforts will be made to minimize the size of the bioswales based on the necessary SWM. Also low level landscaping will be included as long as the project remains permissible and affordable. The team agreed that drainage improvements are necessary with any project. Another point of opposition is that the project is too expensive. The response is that the project is not funded for construction at this time and project costs will be determined in the next phase of facility planning. Another point of opposition is that the sidewalk and/or shared use path will create an unsafe

Bradley Boulevard (MD 191) Improvements Project
Meeting #7 Minutes February 2, 2011

condition due to the conflicts with driveways. The response is that most urban areas have sidewalks across driveways so this would not be an unusual situation.

- b. It was pointed out that the local civic associations and bicycle groups are all in favor of a project. Most didn't specify a preference except for Bradley Hills Civic Association which would prefer alternative 4C.
- c. All agreed that having at least sidewalks on both sides of the road is important to the project to provide connectivity to all residents. Also it was agreed that building only on one side in conjunction with extra crossings of Bradley Boulevard isn't feasible. Reasons include the difficulty in having extra crosswalks approved through SHA, the additional impacts these crossings would create, and the lack of sight distance at many of the potential crossings.
- d. A discussion took place regarding whether the project should be split up with construction of the north side first followed by the south side. After discussion, it was eventually decided that it would be most beneficial to construct the project at one time.
- e. The group discussed their individual preferences. The group's consensus is to support Alternative 4A since it adheres to the master plan and it can always be reduced to Alternative 4B or even 4C at a later time for many potential reasons. Choosing this alternative will allow all of the project elements to be further investigate/designed and estimated which could assist in determining the final scope of the project.

IV. Next Steps

- a. The team discussed the Bradley Boulevard and Wilson Road intersection. It was decided that the project should include the left turn improvements as shown previously in order to provide a safer situation for traffic and bicyclists. It was agreed that simply stopping bypassing vehicles is not an option since this would create unacceptable delay at this intersection. CS revealed an error in the traffic report regarding required turn bay lengths. WR&A will correct this error.
- b. WR&A will develop order of magnitude cost estimates for the build alternatives.

V. Project Schedule

- a. WR&A will complete the section of the prospectus that covers the recommended alternative by the end of February. This information will be included in the last newsletter to the public which will be sent out in early March.
- b. WR&A will complete the first draft of the prospectus by the end of March and will send individual sections earlier as they are completed.
- c. The team will then review, provide comments, and WR&A will complete the prospectus by the end of April.



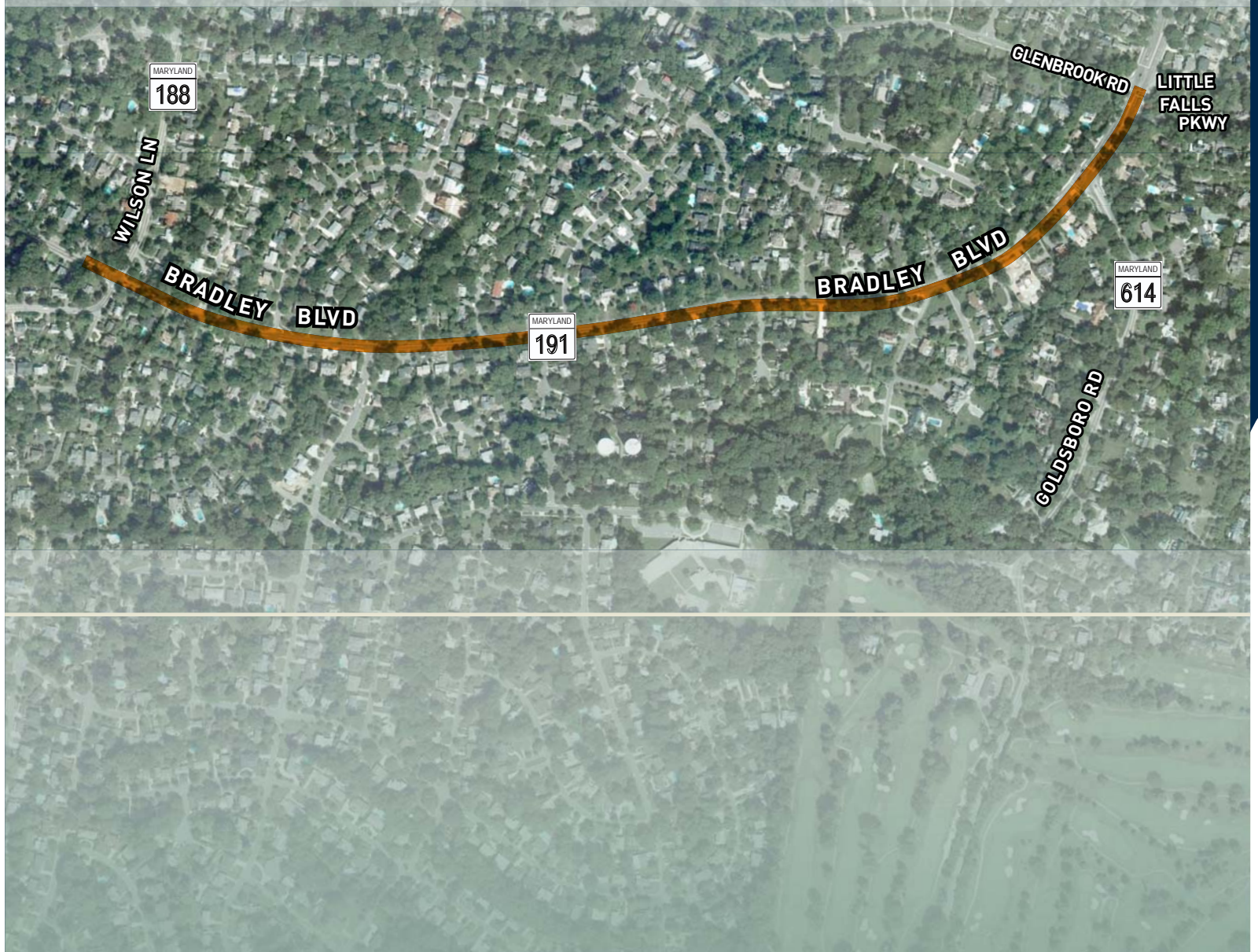
Planning

Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

APPENDIX E

Environmental Assessment Documentation



Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor



John D. Porcari, Secretary
Neil J. Pedersen, Administrator

Maryland Department of Transportation

MEMORANDUM

TO: Ms. Stephanie Yanovitz
Bicycle and Pedestrian Coordinator
Regional and Intermodal Planning Division

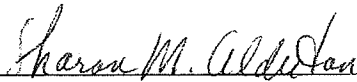
FROM: Bruce M. Grey
Deputy Director
Office of Planning and
Preliminary Engineering

DATE: August 22, 2008

SUBJECT: Project No. MO534A21
MD 191: From MD 614 to MD 188
Reimbursement for Repairs to Bicycle/Pedestrian Path
Montgomery County

The Environmental Planning Section of this Division has reviewed the proposed reimbursement of funds for repairs to an existing bicycle/pedestrian path along MD 191 (Bradley Boulevard), from MD 614 (Goldsboro Road) to MD 188 (Wilson Lane), in Montgomery County (Attachment 1). This review is documented in the attached Environmental Assessment Form (EAF). Work consists of patching the asphalt on an existing bicycle/pedestrian path; no length or width will be added to the path. The Maryland State Highway Administration (SHA) is reimbursing Montgomery County for this work.

This EAF satisfies all environmental documentation requirements for state funded projects. Should the scope of the project be expanded to require work outside of the right-of-way, or easements, further review will be required by this office. If federal funds are used in the engineering, right-of-way acquisition or construction of the project, additional documentation will be required. Should you have any questions, please contact Ms. Catherine Robbins at 410-545-8698.

by: 
Sharon M. Alderton
Team Leader
Project Planning Division

Attachments

cc: Mr. Todd Nichols, SHA-EPD (w/Attachments)
Ms. Catherine Robbins, SHA-PPD “

My telephone number/toll-free number is _____
Maryland Relay Service for Impaired Hearing or Speech: 1.800.735.2258 Statewide Toll Free

Street Address: 707 North Calvert Street • Baltimore, Maryland 21202 • Phone: 410.545.0300 • www.marylandroads.com



MD 191: From MD 614 to MD 188
Reimbursement for Repairs to Bicycle/Pedestrian Path
Montgomery County
Comments

1. There will be no impacts to any 100-year floodplain due to the minor nature of the proposed work.
3. Due to the minor scope of work, no wetland system impact is anticipated.
6. If required, sediment and erosion control plans should be prepared and filed with the Maryland Department of the Environment to reduce the potential impacts to water quality.
13. Under the Programmatic Agreement for Minor Highway Projects, the proposed improvements have been identified as an undertaking that would have no effect upon any historic properties (Attachment 2).
14. The proposed work will not impact fisheries resources, especially if sediment and erosion control methods, and other Best Management Practices typically used for protection of stream resources are utilized.
- 24 & 25. Air and noise analyses are not warranted since the project does not result in any capacity improvements. This project is exempt from the requirement that a conformity determination be made (US EPA Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans, Programs or Projects-Final Rule). This project is exempt under the Clean Air Act pursuant to 40 CFR 93.126. No analysis of Mobil Source Air Toxins is necessary. This project is not a project of air quality concern for PM_{2.5} as determined in the Final Rule at 40 CFR 93.123 (b)(1).
28. There are no state or federal listed rare, threatened or endangered species of fish, plants or animals that will be impacted by the proposed improvements.
37. The project is not inconsistent with the Montgomery County General Plan, Adopted 1993.
47. State requirements will be satisfied upon completion of this EAF.

The following Environmental Assessment Form is a requirement of the Maryland Environmental Policy Act and Maryland Department of Transportation Order 11.01.06.02. Its use is in keeping with the provisions of 1500.4(k) and 1506.2 and .6 of the Council of Environmental Quality Regulations, effective July 31, 1979, which recommend that duplication of Federal, State and Local procedures be integrated into a single process.

The checklist identifies specific areas of the natural and social-economic environment which have been considered while preparing this environmental assessment. The reviewer can refer to the appropriate section of the document, as indicated in the "Comment" column of the form, for a description of specific characteristics of the natural or social-economic environment within the proposed project area. It will also highlight any potential impacts, beneficial or adverse, that the action may incur. The "No" column indicates that during the scoping and early coordination processes, that specific area of the environment was not identified to be within the project area or would not be impacted by the proposed action.

ENVIRONMENTAL ASSESSMENT FORM

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
A. Land Use Considerations			
1. Will the action be within the 100 year floodplain?	_____	<u>X</u>	<u>X</u>
2. Will the action require a permit for construction or alteration within the 50 year floodplain?	_____	<u>X</u>	
3. Will the action require a permit for dredging, filling, draining or alteration of a wetland?	_____	<u>X</u>	<u>X</u>
4. Will the action require a permit for the construction or operation of facilities for solid waste disposal including dredge and excavation spoil?	_____	<u>X</u>	
5. Will the action occur on slopes exceeding 15%?	_____	<u>X</u>	
6. Will the action require a grading plan or a sediment control permit?	_____	<u>X</u>	<u>X</u>
7. Will the action require a mining permit for deep or surface mining?	_____	<u>X</u>	
8. Will the action require a permit for drilling a gas or oil well?	_____	<u>X</u>	
9. Will the action require a permit for airport construction?	_____	<u>X</u>	

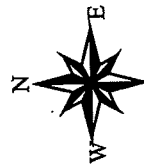
	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
10. Will the action require a permit for the crossing of the Potomac River by conduits, cables or other like devices?	_____	<u>X</u>	
11. Will the action affect the use of a public recreation area, park, forest, wildlife management area, scenic river or wildland?	_____	<u>X</u>	
12. Will the action affect the use of any natural or manmade features that are unique to the county, state, or nation?	_____	<u>X</u>	
13. Will the action affect the use of an archeological or historical site or structure?	_____	<u>X</u>	<u>X</u>
B. Water Use Considerations			
14. Will the action require a permit for the change of the course, current, or cross-section of a stream or other body of water?	_____	<u>X</u>	<u>X</u>
15. Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?	_____	<u>X</u>	
16. Will the action change the overland flow of stormwater or reduce the absorption capacity of the ground?	_____	<u>X</u>	
17. Will the action require a permit for the drilling of a water well?	_____	<u>X</u>	

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
18. Will the action require a permit for water appropriation?	_____	<u>X</u>	
19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?	_____	<u>X</u>	
20. Will the project require a permit for the construction and operation of facilities for sewage treatment and/or land disposal of liquid waste derivatives?	_____	<u>X</u>	
21. Will the action result in any discharge into surface or sub-surface water?	_____	<u>X</u>	
22. If so, will the discharge affect ambient water quality parameters and/or require a discharge permit?	_____	<u>X</u>	
C. Air Use Considerations			
23. Will the action result in any discharge into the air?	_____	<u>X</u>	
24. If so, will the discharge affect ambient air quality parameters or produce a disagreeable odor?	_____	<u>X</u>	<u>X</u>

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
25. Will the action generate additional noise which differs in character or level from present conditions?	<u> </u>	<u> X </u>	<u> X </u>
26. Will the action preclude future use of related air space?	<u> </u>	<u> X </u>	
27. Will the action generate any radiological, electrical, magnetic, or light influences?	<u> </u>	<u> X </u>	
D. Plants and Animals			
28. Will the action cause the disturbance, reduction or loss of any rare, unique or valuable plant or animal?	<u> </u>	<u> X </u>	<u> X </u>
29. Will the action result in the significant reduction or loss of any fish or wildlife habitats?	<u> </u>	<u> X </u>	
30. Will the action require a permit for the use of pesticides, herbicides or other biological, chemical or radiological control agents?	<u> </u>	<u> X </u>	
E. Socio-Economic			
31. Will the action result in a pre-emption or division of properties or impair their economic use?	<u> </u>	<u> X </u>	
32. Will the action cause relocation of activities, structures, or result in a change in the population density or distribution?	<u> </u>	<u> X </u>	

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
33. Will the action alter land values?	_____	<u>X</u>	
34. Will the action affect traffic flow and volume?	_____	<u>X</u>	
35. Will the action affect the production, extra-action, harvest or potential use of a scarce or economically important resource?	_____	<u>X</u>	
36. Will the action require a license to construct a sawmill or other plant for the manufacture of forest products?	_____	<u>X</u>	
37. Is the action in accord with federal, state, regional and local comprehensive or functional plans-including zoning?	<u>X</u>	_____	<u>X</u>
38. Will the action affect the employment opportunities for persons in the area?	_____	<u>X</u>	
39. Will the action affect the ability of the area to attract new sources of tax revenue?	_____	<u>X</u>	
40. Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?	_____	<u>X</u>	
41. Will the action affect the ability of the area to attract tourism?	_____	<u>X</u>	

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
F. Other Considerations			
42. Could the action endanger the public health, safety or welfare?	_____	<u>X</u>	
43. Could the action be eliminated without deleterious affects to the public health, safety, welfare or the natural environment?	_____	<u>X</u>	
44. Will the action be of statewide significance?	_____	<u>X</u>	
45. Are there any other plans or actions (federal, state, county or private) that, in conjunction with the subject action could result in a cumulative or synergistic impact on the public health, safety, welfare, or environment?	_____	<u>X</u>	
46. Will the action require additional power generation or transmission capacity?	_____	<u>X</u>	
47. This agency will develop a complete environmental effects report on the proposed action.	_____	<u>X</u>	<u>X</u>



Washington West Quac

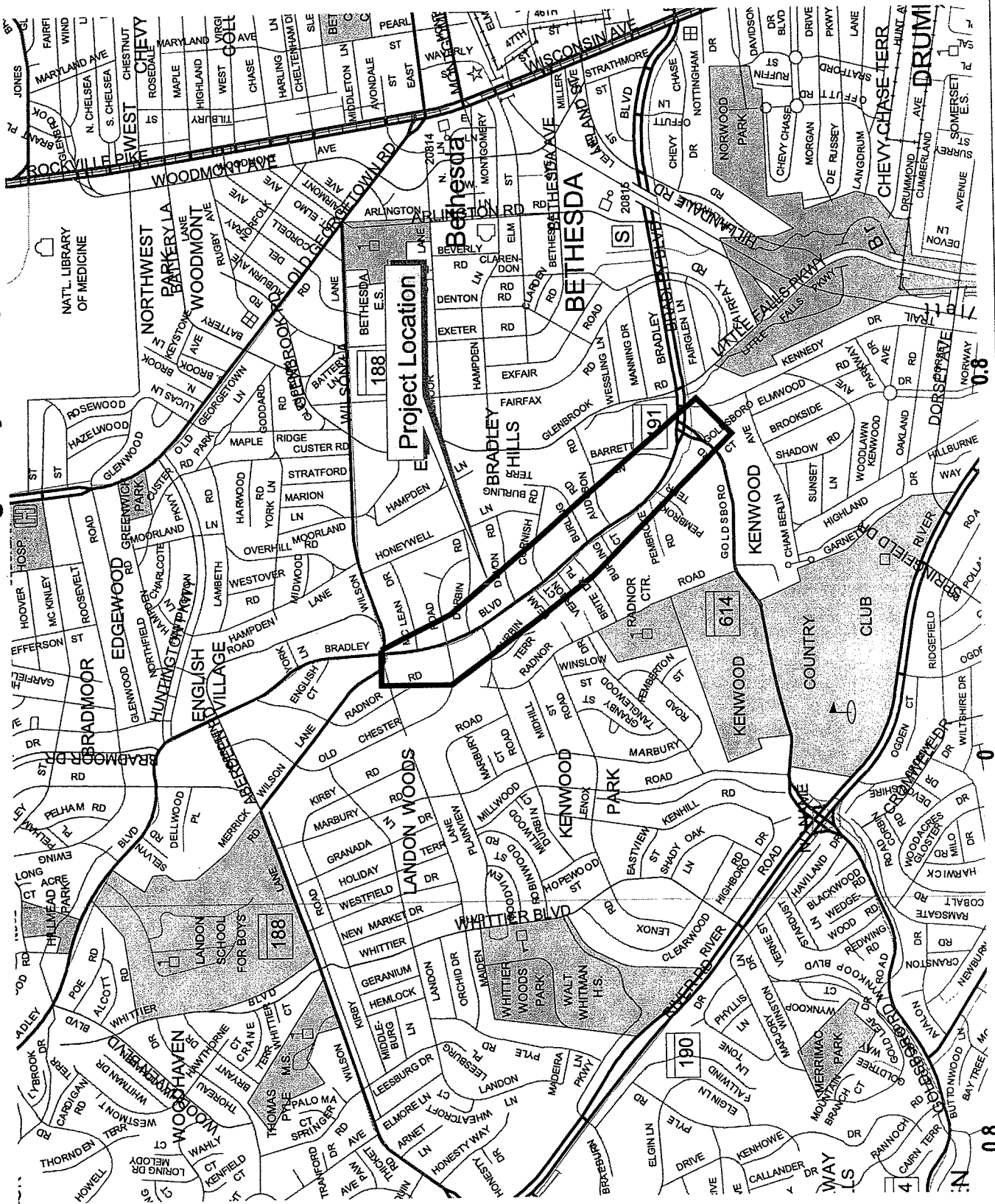
USGS Topo Quad Index

- Roads
- CO
- IS
- MD
- OP
- SR
- US
- MU
- GV
- County

Project Location Map

MD 191: from MD 188 to MD 614

Montgomery County



1.6 Miles

0.8

Appendix 1

August 14, 2008

Project Exempt from Review Determination
(under the Programmatic Agreement for Minor Projects)

Project: MD 191 from MD 188 to MD 614

Funding Source: State

Master #: 6634

Project # MO534A21

Description:

The Maryland State Highway Administration (SHA) is proposing to reimburse Montgomery County for repairs to an existing bicycle/pedestrian path along MD 191 (Bradley Boulevard) from MD 614 (Goldsboro Road) to MD 188 (Wilson Lane). Work consists of patching the asphalt on an existing bicycle/pedestrian path; no length or width will be added to the path.

County: Montgomery

7.5" Topographic Map Name: Washington West (DC)

Environmental Manager: Catherine Robbins

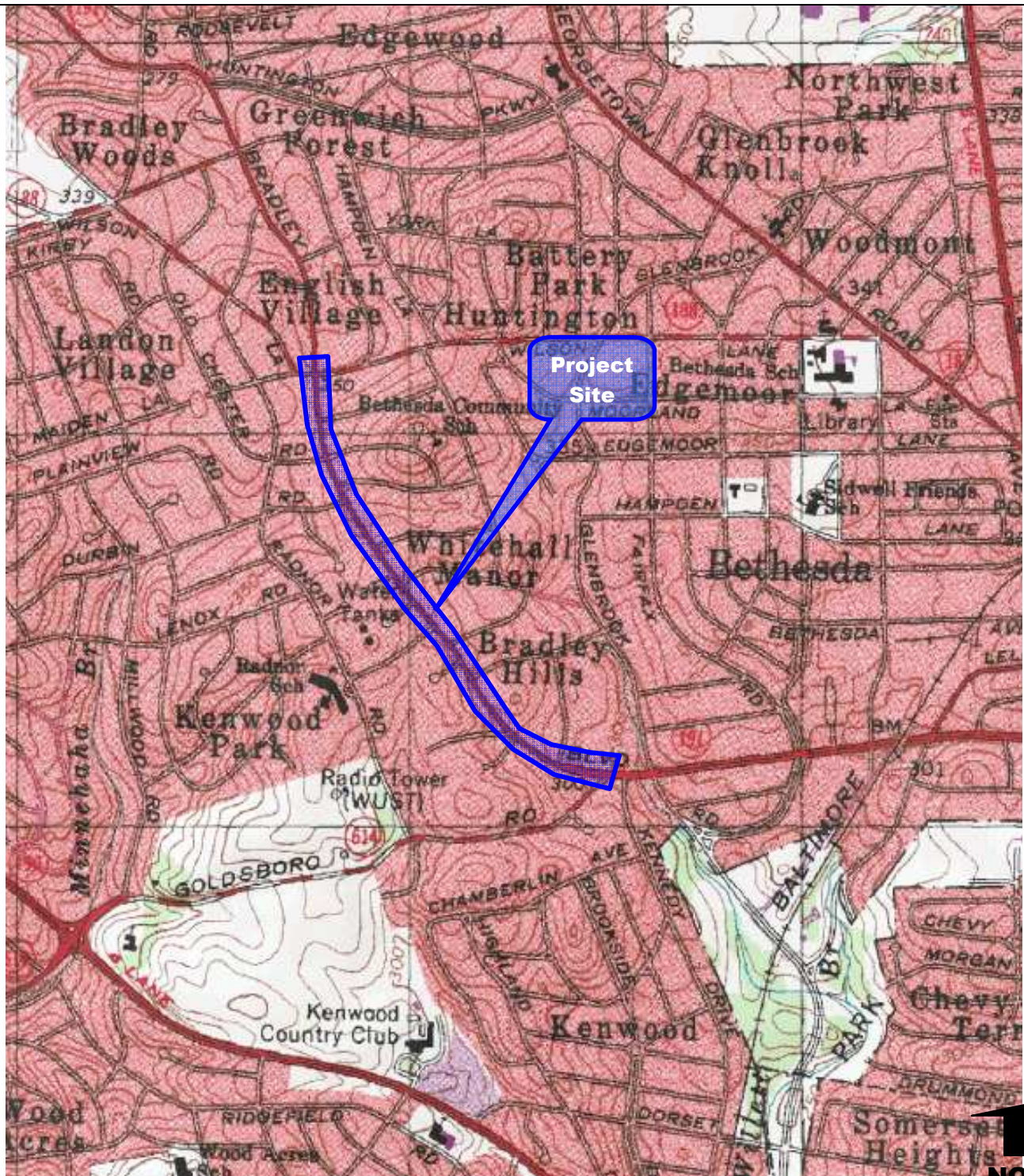
Project Determined Exempt by SHA Cultural Resources Professional: Nichole Mutchie

Exempt Project Type: 5

Archeologist's Comments:

The SHA is proposing patching an existing bicycle/pedestrian path with asphalt with no expansion of the wearing surface. All work will be within the existing SHA right-of-way and the undertaking has no potential to cause effects to cultural resources. The project meets the requirements for exempt projects under Stipulation IV.A.5 of the Programmatic Agreement (PA) with the Maryland Historical Trust (agreement dated July 9, 2008).

Historic Architecture ID (if any):



**WHITMAN, REQUARDT AND
ASSOCIATES, LLP**
Engineers, Architects and Planners

Baltimore, MD • Richmond, VA • Fairfax, VA • York, PA • Pittsburgh, PA • Wilmington, DE • Newport News, VA

SITE LOCATION MAP

**BRADLEY BOULEVARD BIKEWAY PROJECT
MONTGOMERY COUNTY, MARYLAND**

SCALE

Not to Scale

DATE

JUNE 2009

SOURCE

USGS TOPOGRAPHIC MAP
(Washington West, MD)

FIGURE



BRADLEY BOULEVARD BIKEWAY PROJECT

Specimen Tree and Significant Tree Map



SPECIMEN TREE AND SIGNIFICANT TREE LIST

Label	DBH (inches)	Common Name	Scientific Name	Condition
T-1	27.3	Norway maple	<i>Acer platanoides</i>	Good/fair
T-2	36.3	Tulip poplar	<i>Liriodendron tulipifera</i>	Fair (crown dieback)
T-3	40.0	Tulip poplar	<i>Liriodendron tulipifera</i>	Good
T-4	30.0	Tulip poplar	<i>Liriodendron tulipifera</i>	Good
T-5	31.3	Tulip poplar	<i>Liriodendron tulipifera</i>	Fair
T-6	29.8	Tulip poplar	<i>Liriodendron tulipifera</i>	Fair
T-7	28.2	Tulip poplar	<i>Liriodendron tulipifera</i>	Fair
T-8	26.0	Tulip poplar	<i>Liriodendron tulipifera</i>	Poor (edge of asphalt)
T-9	35.0	Silver maple	<i>Acer saccharinum</i>	Fair
T-10	26.0	American elm	<i>Ulmus americana</i>	Fair
T-11	40.4	Tulip poplar	<i>Liriodendron tulipifera</i>	Fair (included bark, double)
T-12	25.2	Tulip poplar	<i>Liriodendron tulipifera</i>	Good
T-13	27.0	Tulip poplar	<i>Liriodendron tulipifera</i>	Fair (leaning)
T-14	47.4	Silver maple	<i>Acer saccharinum</i>	Poor (hollow trunk)
T-15	48.5	American elm	<i>Ulmus americana</i>	Fair
T-16	41.3	Silver maple	<i>Acer saccharinum</i>	Very poor (hazard tree)
T-17	36.3	Mockernut hickory	<i>Carya tomentosa</i>	Good
T-18	28.0	Mockernut hickory	<i>Carya tomentosa</i>	Good
T-19	40.0	Southern red oak	<i>Quercus falcata</i>	Fair (heavily pruned)
T-20	26.0	Mockernut hickory	<i>Carya tomentosa</i>	Good
T-21	30.0	Pin oak	<i>Quercus palustris</i>	Poor (topped)
T-22	32.0	Silver maple	<i>Acer saccharinum</i>	Fair/poor (crown)
T-23	32.5	American sycamore	<i>Platanus occidentalis</i>	Good
T-24	40.3	Red maple	<i>Acer rubrum</i>	Fair
T-25	35.0	Chinese chestnut	<i>Castanea mollissima</i>	Fair
T-26	40.0	Northern red oak	<i>Quercus rubra</i>	Fair/poor (trunk)
T-27	27.0	Northern white cedar/Arborvitae	<i>Thuja occidentalis</i>	Fair (dead branches)
T-28	25.0	Northern white cedar/Arborvitae	<i>Thuja occidentalis</i>	Fair (vines strangling)
T-29	29.9	American beech	<i>Fagus grandifolia</i>	Fair/poor (topped)
T-30	34.2	Southern red oak	<i>Quercus falcata</i>	Good
T-31	36.3	Silver maple	<i>Acer saccharinum</i>	Good
T-32	29.2	Silver maple	<i>Acer saccharinum</i>	Fair
T-33	26.0	Norway maple	<i>Acer platanoides</i>	Fair/poor (hollow)
T-34	26.3	White pine	<i>Pinus strobus</i>	Fair (heavily pruned)
T-35	24.0	Black walnut	<i>Juglans nigra</i>	Good
T-36	38.0	Black walnut	<i>Juglans nigra</i>	Good/fair
T-37	29.5	Pin oak	<i>Quercus palustris</i>	Fair
T-38	41.8	Northern red oak	<i>Quercus rubra</i>	Good
T-39	27.4	Northern red oak	<i>Quercus rubra</i>	Good/fair
T-40	32.4	Northern red oak	<i>Quercus rubra</i>	Fair (leaning)
T-41	40.2	Northern red oak	<i>Quercus rubra</i>	Good/fair
T-42	42.0	White oak	<i>Quercus alba</i>	Good
T-43	24.0	White oak	<i>Quercus alba</i>	Good
T-44	30.0	Tulip poplar	<i>Liriodendron tulipifera</i>	Good
T-45	30.0	Tulip poplar	<i>Liriodendron tulipifera</i>	Good

Label	DBH (inches)	Common Name	Scientific Name	Condition
T-46	28.9	Pin oak	<i>Quercus palustris</i>	Fair
T-47	28.2	White pine	<i>Pinus strobus</i>	Good/fair
T-48	24.9	Red maple	<i>Acer rubrum</i>	Fair
T-49	34.4	Red maple	<i>Acer rubrum</i>	Fair/poor (topped, double)
T-50	24.0	Red maple	<i>Acer rubrum</i>	Poor (double, dead trunk)
T-51	26.1	Silver maple	<i>Acer saccharinum</i>	Fair (topped)
T-52	26.0	Tulip poplar	<i>Liriodendron tulipifera</i>	Fair (poison ivy strangling)
T-53	30.8	Silver maple	<i>Acer saccharinum</i>	Fair
T-54	30.4	Virginia pine	<i>Pinus virginiana</i>	Fair



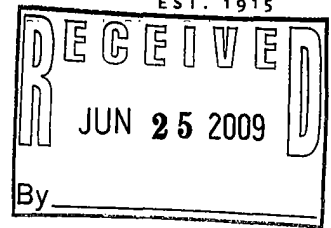
WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS • ARCHITECTS • PLANNERS
EST. 1915

June 24, 2009

Ms. Elizabeth Cole
Project Review and Compliance, Office of Preservation Services
Maryland Historical Trust
100 Community Place
Crownsville, MD 21302

200902378

F
SHA
TJT/ETC



Re: Bradley Boulevard Bikeway Project
Montgomery County Department of Transportation
WR&A WO#: 31681-02

RECEIVED

AUG 3 2009

Dear Ms. Cole:

On behalf of the Montgomery County Department of Transportation, Whitman, Requardt, and Associates, LLP is currently designing improvements to the bike/pedestrian pathway along Bradley Boulevard (Route 191) in Bethesda, Maryland. The proposed project consists of providing roadway shoulder widening/reconstruction where necessary, re-striping of pavement to provide on-road shared shoulders, providing drainage improvements, installing sidewalks on the west side of the roadway, and constructing an off-road shared use path along the east side of Bradley Boulevard within the approximate 100 foot wide State Highway Administration (SHA) right-of-way from Wilson Lane (Route 188) southeast approximately 4,300 feet to Goldsboro Road (Route 614). No property acquisitions are proposed. A **photo log** is attached showing the general project area. A **Site Location Map** using USGS topographic mapping (USGS Quadrangle: Washington West, MD) is enclosed for your reference.

Federal and/or State involvement for this project is Maryland Forest Conservation Act compliance. No readily visible historic structures, ruins or other cultural resources are identified in the project area. The project location is noted on the attached USGS 7.5 Minute Quadrangle (Washington West, MD). Present land use in the project area is roadway for transportation purposes and residential development. No impacts are anticipated outside of the limits of disturbance (LOD).

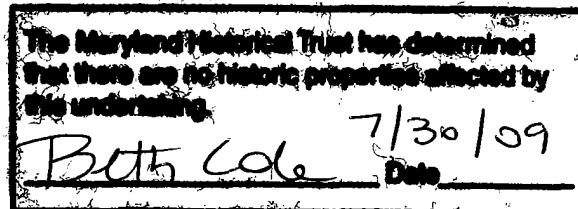
As required by the State/Federal involvement, we are requesting any information or records regarding the presence of cultural, archaeological, or historic resources within the project area. Thank you for your assistance. We look forward to working with your agency to successfully complete this needed project. Should you require additional information, please contact me at (703) 293-9717.

Very truly yours,

Whitman, Requardt & Associates, LLP

Glenn A. Wilson

Glenn Wilson
Environmental Scientist



Enclosures

cc: Amanda Baxter, WR&A

HBE: IA DT 7/24/09

Arhes: IA BC 7/30/09

3701 Pender Drive, Suite 210, Fairfax, Virginia 22030 www.wrallp.com Phone: 703.293.9717 Fax: 703.273.6773

Baltimore, MD • Blacksburg, VA • Fairfax, VA • Georgetown, DE • Newport News, VA • Pittsburgh, PA • Richmond, VA • Wilmington, DE • York, PA

V:\31681-002\Engineering\Environmental\MHT ltr-6-24-2009.doc

M: 35-143 Bradley Hills - English Village District not eligible (2002) no other districts



Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Eric Schwaab, Deputy Secretary

August 6, 2009

RECEIVED

AUG 11 2009

Mr. Glenn Wilson
Whitman, Requardt and Associates, LLP
3701 Pender Drive, Suite 210
Fairfax, VA 22030

RE: Environmental Review for Bradley Boulevard Bikeway Project, WR&A WO# 31681-02, Bethesda, Montgomery County, Maryland.

Dear Mr. Wilson:

The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. This statement should not be interpreted however as meaning that rare, threatened or endangered species are not in fact present. If appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2009.1128.mo



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
410/573-4575



July 16, 2009

RECEIVED

JUL 20 2009

Whitman, Requardt & Associates, LLP
3701 Pender Drive, Suite 210
Fairfax, VA 22030

RE: Bradley Boulevard Bikeway Project Montgomery County MD WR&A 31681-02

Dear: Glenn Wilson

This responds to your letter, received June 24, 2009, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above reference project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

Effective August 8, 2007, under the authority of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (Service) removed (delist) the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. However, the bald eagle will still be protected by the Bald and Golden Eagle Protection Act, Lacey Act and the Migratory Bird Treaty Act. As a result, starting on August 8, 2007, if your project may cause "disturbance" to the bald eagle, please consult the "National Bald Eagle Management Guidelines" dated May 2007.

If any planned or ongoing activities cannot be conducted in compliance with the National Bald Eagle Management Guidelines (Eagle Management Guidelines), please contact the Chesapeake Bay Ecological Services Field Office at 410-573-4573 for technical assistance. The Eagle Management Guidelines can be found at:

<http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>

In the future, if your project can not avoid disturbance to the bald eagle by complying with the Eagle Management Guidelines, you will be able to apply for a permit that authorizes the take of bald and golden eagles under the Bald and Golden Eagle Protection Act, generally where the take to be authorized is associated with otherwise lawful activities. This proposed permit process will not be available until the Service issues a final rule for the issuance of these take permits under the Bald and Golden Eagle Protection Act.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Devin Ray at (410) 573-4531.

Sincerely,

A handwritten signature in black ink, appearing to read "Leopoldo Miranda", written in a cursive style.

Leopoldo Miranda
Field Supervisor



MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore MD 21230

410-537-3000 • 1-800-633-6101

Martin O'Malley
Governor

Anthony G. Brown
Lieutenant Governor

Shari T. Wilson
Secretary

Robert M. Summers, Ph.D.
Deputy Secretary

August 21, 2009

Mr. Glenn Wilson
Whitman Requardt & Associates
3701 Pender Drive
Suite 210
Fairfax VA 22030

RE: Tracking Number: 2009-42850
Request Received August 14, 2009

PEPCO SPILL

Dear Mr. Wilson:

The Maryland Department of the Environment (MDE) received your recent request for information under the Public Information Act (PIA).

The Waste Management Administration had a file on this site, however, the file was destroyed in accordance with the Waste Management Administration's record retention schedule. This program maintains archived files for 5 years prior to destruction. MDE is required to send you this notice pursuant to Code of Maryland Regulation 26.01.04.10.

When requesting information regarding this request, please cite the tracking number referenced above. If you have any questions, please call me at (410) 537-3422.

Sincerely,

Maria Stephens
PIA Liaison
Waste Management Administration





MARYLAND DEPARTMENT OF THE ENVIRONMENT

1800 Washington Boulevard • Baltimore MD 21230

410-537-3000 • 1-800-633-6101

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Deputy Secretary

August 21, 2009

Mr. Glenn Wilson
Whitman Requardt & Associates
3701 Pender Drive
Suite 210
Fairfax VA 22030

RE: Tracking Number: 2009-42850
Request Received August 14, 2009

PEPCO SPILL

Dear Mr. Wilson:

The Maryland Department of the Environment (MDE) received your recent request for information under the Public Information Act (PIA).

Information responsive to your PIA request, obtained from the Waste Management Administration, is enclosed. There were no charges incurred as a result of this search.

When requesting information regarding this request, please cite the tracking number referenced above. If you have any questions, please call me at (410) 537-3422.

Sincerely,

Maria Stephens
PIA Liaison
Waste Management Administration

cc: Maria Stephens, Waste Management Administration

RECEIVED
AUG 24 2009



SUPERVISOR CLOSURE REVIEW

Case No. 99-2992-Ho1

Date: 7-20-99

Release? No ☐

Yes ☒

Comment _____

<input type="checkbox"/> FEDERAL (UST Motor/Lube/Bulk)	<input checked="" type="checkbox"/> STATE (UST Heating Oil/All AST)
Color Coding	Aboveground Tank Leak
Compliance Inspections	Dumping
Ground Seat Investigation	Cross Water
Inventory	Permit Inspections
New Installation - Motor/Lube Oil	New Installation - Heating Oil
Overfill Protection	Transfer Accident
Registration - Motor/Lube Oil	Registration - Heating Oil
Release Detection	Vehicle Accident
Removal/Repair - Motor/Lube Oil	Removal/Repair - Heating Oil
Soil Contamination - Motor/Lube Oil	Soil Contamination - Heating Oil
Surface Soil Originating from UST - Motor/Lube Oil	Surface Soil Originating from UST - Heating Oil <input checked="" type="checkbox"/>
Tank Removal/Abandonment - Motor/Lube Oil	Tank Removal/Abandonment - Heating Oil
Tank Test Failure - Motor/Lube Oil	Tank Test Failure - Heating Oil
Tank Truck Driver Attendance - Motor/Lube Oil	Tank Truck Driver Attendance - Heating Oil
Vapor Problem - Motor/Lube Oil	Vapor Problem - Heating Oil
Well/Groundwater Contamination - Motor/Lube Oil	Well/Groundwater Contamination - Heating Oil

Agree to close: Yes ☒

No ☐

Reference/Support _____

John Shish
Signature

LEAK SUMMARY & TANK CLOSURE

CASE # 99-2992 M01

DATE OPENED

06/01/99

DATE CLOSED

06/01/99

EST. TIME TAKING TO REM. 15 MIN.

TYPE OF CASE:

- A) PULL _____
 B) INSTALLATION _____
 C) SURFACE ☒ _____
 D) LEAK INVESTIGATION _____
 E) COMPLIANCE CHECK _____
 F) TANK TEST FAILURE _____
 G) ABANDONMENT-IN-PLACE _____
 H) OTHER _____

SPILL AFFECTED:

- A) GROUNDWATERS _____
 B) DOMESTIC WELLS _____
 C) SURFACE WATERS _____
 D) A BUILDING _____
 E) STORM DRAIN _____
 F) SANITARY LINE _____
 G) UTILITY WORK OR LINES _____
 H) REACHED ADJOIN PROPERTY _____
 I) NONE/OTHER (SPECIFY) _____
 J) SOILS ☒ _____

OWNER OF SYSTEM:

- A) MAJOR OIL COMPANY _____
 B) LOCAL OIL COMPANY _____
 C) PRIVATE OWNER _____
 D) SERVICE STATION _____
 E) GOVERNMENT FACILITY _____
 F) PRIVATE RESIDENT ☒ _____
 G) APARTMENT _____
 H) SCHOOL _____
 I) COMMERCIAL BUSINESS _____
 J) OTHER (SPECIFY) _____

If under "Type of Case" Item B, C, or E is checked, do not fill in chart below.

Observation wells installed? Yes _____ No ☒ _____

No. of Wells _____

	Tank Capacity	Tank Type	Line Type	Age	Product	Tank Status	Leak Found
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Release detected? Yes ☒ No _____DAF Codes: A4

CODES FOR USE ON REVERSE SIDE

TYPE:

- | | |
|---------------------------------|---------------|
| A) Steel | D) Other |
| B) Fiberglass | E) Clad Steel |
| C) Cathodically-Protected Steel | F) Copper |

AGE:

- | | |
|----------------|------------------|
| A) 1-5 years | D) 16-20 years |
| B) 6-10 years | E) Over 20 years |
| C) 11-15 years | |

PRODUCT:

- | | |
|-------------|--------------|
| A) Gasoline | G) Jet Fuel |
| B) #2 Oil | H) Waste Oil |
| C) Kerosene | I) Asphalt |
| D) #4 Oil | J) Other |
| E) #5 Oil | K) Diesel |
| F) #6 Oil | |

LEAK FOUND IN:

- | | |
|----------------|-------------------|
| A) Tank | F) Fill Pipe |
| B) Supply Line | G) Air Pocket |
| C) Return Line | H) None |
| D) Vent Line | I) Other |
| E) Fittings | J) Flex Connector |

STATUS:

- | |
|-----------------------|
| A) In Service |
| B) Removed |
| C) Abandoned-In-Place |

Maryland Department of the Environment
Waste Management Administration
2500 Broening Highway, Baltimore, MD 21224
(410)631-3442

Case No.

Report of Observations

Facility I.D. No.

Date 06/11/99

Type of Inspection/Observation:

Facility Name Petro Oil Spill; 5303 Bradley Blvd. Bethesda

Remarks Writer visited site and found minimal contamination around the fill and vent.
No action required.

Observer James H. Chilcote
Person Interviewed



Kortine

MARYLAND DEPARTMENT OF THE ENVIRONMENT
TECHNICAL AND REGULATORY SERVICES ADMINISTRATION
EMERGENCY RESPONSE DIVISION

25

☐ Chemical ☒ Petroleum ☐ Other

- *****
1. Name of Person Taking Report: Butler
2. Date of Report 11/24/98 3. Time of Report: 1555
4. Original Complainant: Donald Russell
5. Complainant Agency or Address: Petro Oil Co.
6. Complainant Telephone#: (301) 420-8000
- *****
7. Date of Spill: 11/24/98 8. Time of Spill: 1500
9. Company Name: _____
10. Precise Location of Spill or Incident: 5303 Bradley Blvd.
- 10a. City: Bethesda
11. Nearest Cross Street: _____ 12. County: MG (0081)
13. Type of Product Involved: #2 ☐ UNK.
14. Quantity on Board: _____ ☐ UNK. 15. Amount Spilled: 1 gal. ☐ UNK.
16. Details of Spill: overfill of tank - out of vent pipe
- _____
- _____
17. Has Product Entered Waterway: ☐ Yes ☒ No ☐ UNK
18. Name of Waterway: _____
- *****
19. Has Corrective Action Been Taken?: ☒ Yes ☐ No ☐ UNK
20. If Yes, What?: oil absorbent
- _____
21. Responsible Party: Mortaza
22. RP's Address: _____
23. RP's Telephone#: (301) 657-4415
- *****



DEPARTMENT OF ENVIRONMENTAL PROTECTION

Isiah Leggett
County Executive

Robert G. Hoyt
Director

August 20, 2009

Glenn R. Wilson
Whitman, Requardt & Associates, LLP
3701 Pender Drive, Suite 210
Fairfax, VA 22030

Location(s) Searched: Bradley Blvd. SHA Right of Way from Wilson Lane to Goldsboro Rd

Dear Mr. Wilson:

Thank you for contacting the Department of Environmental Protection regarding your request for information about a Phase I Environmental Assessment.

In response to your request received on July 23, 2009, we conducted a search of environmental complaints investigated by the DEP using our complaint-tracking database for the period from 1989 to the present. No records were found in our database for the referenced location(s); therefore, DEP is not aware of any environmental problems for this location.

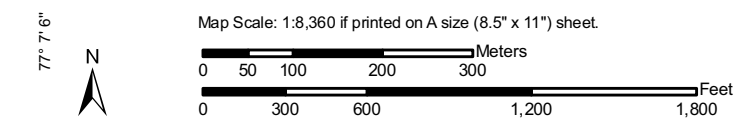
The DEP does not issue well permits, underground storage tank permits or other permits associated with the storage, treatment or discharge of wastewater or hazardous materials. While we are sometimes notified of problems associated with these incidents, actual permit activities are within the jurisdiction of the Maryland Department of the Environment (MDE). You may contact them at 1-800-633-6101 or 410-537-3000 to obtain more information. DEP records indicate several Brownfields sites are located in Montgomery County. Since the Brownfields program is administered by MDE, please contact them at the numbers referenced above for further information. In addition, you may contact the Montgomery County Office of Emergency Management and Homeland Security at 240-777-2300 for information on the storage of hazardous materials and aboveground storage tanks.

If you have any questions concerning the information contained in this letter, please feel free to contact me at 240-777-7770 or by email at AskDEP@montgomerycountymd.gov.

Sincerely,

Stan Edwards, Division Chief
Environmental Policy and Compliance


Soil Map—Montgomery County, Maryland
(Bradley Blvd. Soils)



Soil Map—Montgomery County, Maryland
(Bradley Blvd. Soils)

MAP LEGEND






















Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot



Very Stony Spot



Wet Spot



Other

Special Line Features



Gully



Short Steep Slope



Other

Political Features



Cities

Water Features



Oceans



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

MAP INFORMATION

Map Scale: 1:8,360 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Maryland

Survey Area Data: Version 7, Feb 2, 2007

Date(s) aerial images were photographed: 6/21/2005

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



Map Unit Legend

Montgomery County, Maryland (MD031)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1C	Gaila silt loam, 8 to 15 percent slopes	11.9	12.3%
2UB	Glenelg-Urban land complex, 0 to 8 percent slopes	81.3	84.3%
2UC	Glenelg-Urban land complex, 8 to 15 percent slopes	2.4	2.4%
6A	Baile silt loam, 0 to 3 percent slopes	0.1	0.1%
16D	Brinklow-Blocktown channery silt loams, 15 to 25 percent slopes	0.8	0.8%
Totals for Area of Interest		96.3	100.0%

FEDERAL DATABASES SEARCHED BY EDR		
DATABASE	DESCRIPTION	SEARCH DISTANCE
NPL	National Priorities List (Superfund). Hazardous waste sites targeted for possible long-term remedial action under the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).	1 mile
Proposed NPL	Proposed National Priority List Sites.	1 mile
Delisted NPL	National Priority List Deletions. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establish the criteria that EPA uses to delete sites from the NPL.	1 mile
NPL LIENS	Federal Superfund Liens.	Project Site
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). Sites that are proposed for or on the NPL, or in the screening or assessment phase for possible inclusion on the NPL.	0.5 mile
CERC-NFRAP	Archived CERCLIS sites with a status of No Further Remedial Action Planned (NFRAP), denoting sites where, following an initial investigation, either no contamination was found, contamination was removed quickly without need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. The NFRAP status does not necessarily indicate that no environmental concerns are present.	0.5 mile
LIENS 2	CERCLA Lien information. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies.	Project Site
CORRACTS	Hazardous waste handlers with Resource Conservation and Recovery Act (RCRA) corrective action activity.	1 mile
RCRA-TSDF	Resource Conservation and Recovery Information System (RCRIS), Treatment, Storage, and Disposal (TSD) facilities. Hazardous waste handlers.	0.5 mile
RCRA-LQG	RCRIS sites that are large-quantity generators (LQG) of hazardous waste. LQGs generate over 1,000 kg of hazardous waste, or over 1 kg of acutely hazardous waste per month.	0.25 mile
RCRA-SQG	RCRIS sites that are small-quantity generators (SQG) of hazardous waste. SQGs generate between 100 kg and 1,000 kg of hazardous waste per month.	0.25 mile
RCRA-CESQG	RCRA-Conditionally Exempt Small Quantity Generators. CESQGs generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.	0.25 mile
RCRA-NonGen	RCRA-Non Generators. Non-Generators do not presently generate hazardous waste.	0.25 mile
ERNS	Emergency Response Notification System. Releases of oil and hazardous substances.	Project Site
HMIRS	Hazardous Materials Information System Database. A list of release incident information reported to the Department of Transportation by carriers of hazardous materials.	Project Site
US ENG CONTROLS	Engineering Controls Sites List. A list of sites with engineering controls in place including various forms of caps, building foundations, liners, and treatment methods.	0.5 mile
US INST CONTROL	Sites with Institutional Controls. A listing of sites with institutional controls in place, including administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements.	0.5 mile
DOD	Department of Defense Sites. Data set of federally owned or administered lands having area equal to or greater than 640 acres of the US, Puerto Rico, and the US Virgin Islands.	1 mile
FUDS	Formerly used Defense properties where USACE will take necessary cleanup actions.	1 mile
US BROWNFIELDS	A listing of Brownfield sites.	0.5 mile
CONSENT	Superfund (CERCLA) Consent Decrees. Major legal settlements that establish responsibility and standard for cleanup at NPL (Superfund) sites.	1 mile
ROD	Records of Decision. ROD documents mandate a permanent cleanup at an NPL (Superfund) site containing technical and health information to aid in the cleanup.	1 mile
UMTRA	Uranium Mill Tailings Sites. (Mined by private companies for federal government use in national defense programs.)	0.5 mile

FEDERAL DATABASES SEARCHED BY EDR		
DATABASE	DESCRIPTION	SEARCH DISTANCE
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations. A listing of illegal dump sites located on the Torres Martinez Indian Reservation located in eastern Riverside and northern Imperial County, California.	0.5 mile
ODI	Open Dump Inventory: Disposal facility that does not comply with one or more of CFR Part 257 or Part 258 Subtitle D Criteria.	0.5 mile
TRIS	Toxic Chemical Release Inventory System. TRIS identifies facilities, which release toxic chemicals into the air, water, and land in reportable quantities.	Project Site
TSCA	Toxic Substance Control Act. An inventory, which includes locations and chemical production of more than 700 processors and manufacturers of chemicals.	Project Site
FTTS	National Compliance Database tracking administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA, and EPCRA.	Project Site
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing. Information was obtained from the National Compliance Database. May include data not in newer FTTS database.	Project Site
SSTS	Section 7 Tracking Systems of the Federal Insecticide, Fungicide, and Rodenticide Act.	Project Site
ICIS	Integrated Compliance Information System supports information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.	Project Site
US CDL	Clandestine Drug Labs Database. Locations listed by the U.S. Department of Justice.	Project Site
LUCIS	Land Use Control Information System. Contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.	0.5 mile
RADINFO	Radiation Information Database. EPA regulated facilities for radiation and radioactivity.	Project Site
DOT OPS	Incident and Accident Data from the Department of Transportation, Office of Pipeline Safety Incident and Accident data.	Project Site
PADS	PCB Activity Database System. The PADS database stores information about facilities that handle polychlorinated biphenyls (PCBs).	Project Site
MLTS	Material License Tracking System. MLTS contains information on sites licensed by the NRC to handle radioactive materials.	Project Site
MINES	Mines Master Index File containing all mine identification numbers issued for mines active or opened since 1971.	0.25 mile
FINDS	Facility Index System. An inventory of all facilities that are regulated or tracked by EPA.	Project Site
RAATS	RCRA Administrative Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violations and includes administrative and civil actions brought by the EPA LOCAL (VIRGINIA)	Project Site
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners listing	0.5 mile

TRIBAL DATABASES SEARCHED BY EDR		
DATABASE	DESCRIPTION	DATABASE
INDIAN RESERV	Indian administered lands of the US having area equal to or greater than 640 acres.	1 mile
INDIAN LUST	Leaking Underground Storage Tanks on Indian Land.	0.5 mile
INDIAN UST	Underground Storage Tanks on Indian Land.	0.25 mile
INDIAN VCP	Voluntary Cleanup Priority Listing	0.5 mile

EDR PROPRIETARY RECORDS		
DATABASE	DESCRIPTION	DATABASE
Manufactured Gas Plants	Database including records of coal gas plants used in the US from the 1800's to 1950's.	1 mile
EDR Historical Auto Stations	Database from business directories of potential gas stations/service stations.	0.25 mile
EDR Historical Cleaners	Database from business directories of potential dry cleaning establishments.	0.25 mile

LOCAL (MARYLAND) DATABASES SEARCHED BY EDR		
DATABASE	DESCRIPTION	SEARCH DISTANCE
SHWS	Notice of Potential Hazardous Waste Sites	1 mile
State Landfills	Permitted Solid Waste Disposal Facilities	0.5 mile
SWRCY	Recycling Directory	0.5 mile
OCPCASES	Oil Control Program Cases	0.5 mile
HIST LUST	Recovery Sites	0.5 mile
UST	Registered Underground Storage Tank List	0.25 mile
Historical UST	Historical UST Registered Database	0.25 mile
AST	Permitted Aboveground Storage Tanks	0.25 mile
INST CONTROL	Voluntary Cleanup Program Applicants/Participants	0.5 mile
VCP	Voluntary Cleanup Program Applicants/Participants	0.5 mile
DRYCLEANERS	Registered Drycleaning Facilities	0.25 mile
BROWNFIELDS	Eligible Brownfields Properties	0.5 mile
AIRS	Permit and Facility Information Listing	Project Site
LEAD	Lead Inspection Database	Project Site
NPDES	Wastewater Permit Listing	Project Site

EDR IDENTIFIED REGULATORY SITES WITHIN PROJECT CORRIDOR			
LOCATION	DATABASE INFORMATION	MDE FILE INFORMATION	DISTANCE/DIRECTION FROM PROJECT SITE
Edward Mehlman 5625 Bradley Blvd. Bethesda, MD 20817	<u>RCRA-SQG</u> Waste Name: Silver Violation Status: No violations found <u>FINDS</u>	♦ NA	Project Site
5504 Bradley Blvd. Bethesda, MD 20817	<u>MD LEAD</u> Inspection Date: 10/2/1997 Pass/Fail: P	♦ NA	Project Site
5408 Bradley Blvd. Bethesda, MD 20814	<u>MD LEAD</u> Inspection Date: 10/29/2005 Pass/Fail: P Inspection Date: 3/14/2007 Pass/Fail: P Inspection Date: 3/17/2008 Pass/Fail: P	♦ NA	Project Site
Pepco Spill 5401 Bradley Blvd. Bethesda, MD 20814	<u>OCPCASES</u> OCP Case #: 02-1434MO1 Facility Status: Closed Date Open: 5/10/2002 Date Closed: 6/12/2002 Release: Yes Cleanup: Yes	♦ Per MDE, files destroyed	Project Site

EDR IDENTIFIED REGULATORY SITES WITHIN PROJECT CORRIDOR			
LOCATION	DATABASE INFORMATION	MDE FILE INFORMATION	DISTANCE/DIRECTION FROM PROJECT SITE
	Facility Code: Dumping		
Petro Oil Spill 5305 Bradley Blvd. Bethesda, MD 20814	<u>OCPCASES</u> OCP Case #: 99-2994MO1 Facility Status: Cancelled Date Open: 6/11/1999 Date Closed: 6/11/1999 Release: Yes Cleanup: Not Reported Facility Code: NC	◆ Per MDE, files destroyed	Project Site
Pepco Spill 5303 Bradley Blvd. Bethesda, MD 20814	<u>OCPCASES</u> OCP Case #: 99-2992MO1 Facility Status: Closed Date Open: 6/11/1999 Date Closed: 7/20/1999 Release: Yes Cleanup: Yes Facility Code: Surface Spill from UST-Residential Heating oil <u>ERNS</u>	◆ Overfill of #2 heating oil at the outlet/vent pipe ◆ Oil sorbent placed on spilled material ◆ MDE visited site on 6/11/99 and found minimal contamination at site ◆ Case closed on 7/20/99	Project Site
5500 Burling Court Bethesda, MD 20817	<u>MD LEAD</u> Inspection Date: 7/18/2008 Pass/Fail: P	◆ NA	± 50 feet west
5702 Maiden Lane Bethesda, MD 20817	<u>MD LEAD</u> Inspection Date: 9/29/2005 Pass/Fail: P	◆ NA	± 100 feet west
5507 Burling Court Bethesda, MD 20817	<u>MD LEAD</u> Inspection Date: 1/10/2008 Pass/Fail: P Inspection Date: 10/27/2000 Pass/Fail: P	◆ NA	± 200 feet west



Planning

Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

APPENDIX F

Traffic Study



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BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

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I. Introduction

The Montgomery County Department of Transportation (MCDOT) initiated a Phase I Facility Planning Study to evaluate the need for sidewalks, master planned bicycle facilities and traffic safety improvements along Bradley Boulevard (MD 191) between Wilson Lane (MD 188) and Goldsboro Road (MD 614).

This study included a review of the 1990 *Approved and Adopted Bethesda-Chevy Chase Master Plan* and the 2005 *Countywide Bikeways Functional Master Plan*. The study recommended providing a pedestrian connection between the existing sidewalk on Bradley Boulevard east of Goldsboro Road and existing sidewalk on Wilson Lane.

The study area is located in a single-family residential community in Bethesda, Maryland, see the site map on Figure 1. The east end of the study area was extended from Goldsboro Road to Glenbrook Road after the first public meeting and newsletter. There were many public comments that Glenbrook Road is the more logical project terminus due to its connection to the Capital Crescent Trail.

II. Existing Conditions

1. Existing Pedestrian Facilities: Signal, Crosswalk, and Sidewalk Locations

Note: Throughout the study corridor, Bradley Boulevard is classified as an east-west roadway, and is labeled as such in this report, although it is aligned in the north-south direction in the vicinity of the Wilson Lane intersection.

Two intersections in the study area are signal-controlled and were analyzed as part of the Study: **Bradley Boulevard (MD 191) at Wilson Lane (MD 188)** and **Bradley Boulevard (MD 191) at Goldsboro Road (MD 614)**. Bradley Boulevard (MD 191) at Glenbrook Road is also signalized but was not analyzed and no changes were considered at this location as part of the Study. The Bradley Boulevard at Wilson Lane intersection has marked crosswalks on two of the four approaches, one crossing the NB Wilson Lane approach, and one crossing the WB Bradley Boulevard approach. Within the study area is the **Bradley Boulevard at Brite Drive** intersection, which is stop-controlled along the Brite Drive approach. This intersection has a marked crosswalk on one of its three approaches, crossing the EB Bradley Boulevard approach. The Bradley Boulevard at Goldsboro Road intersection has a marked crosswalk on the west leg of the intersection. A summary of existing pedestrian facilities is shown in Table 1

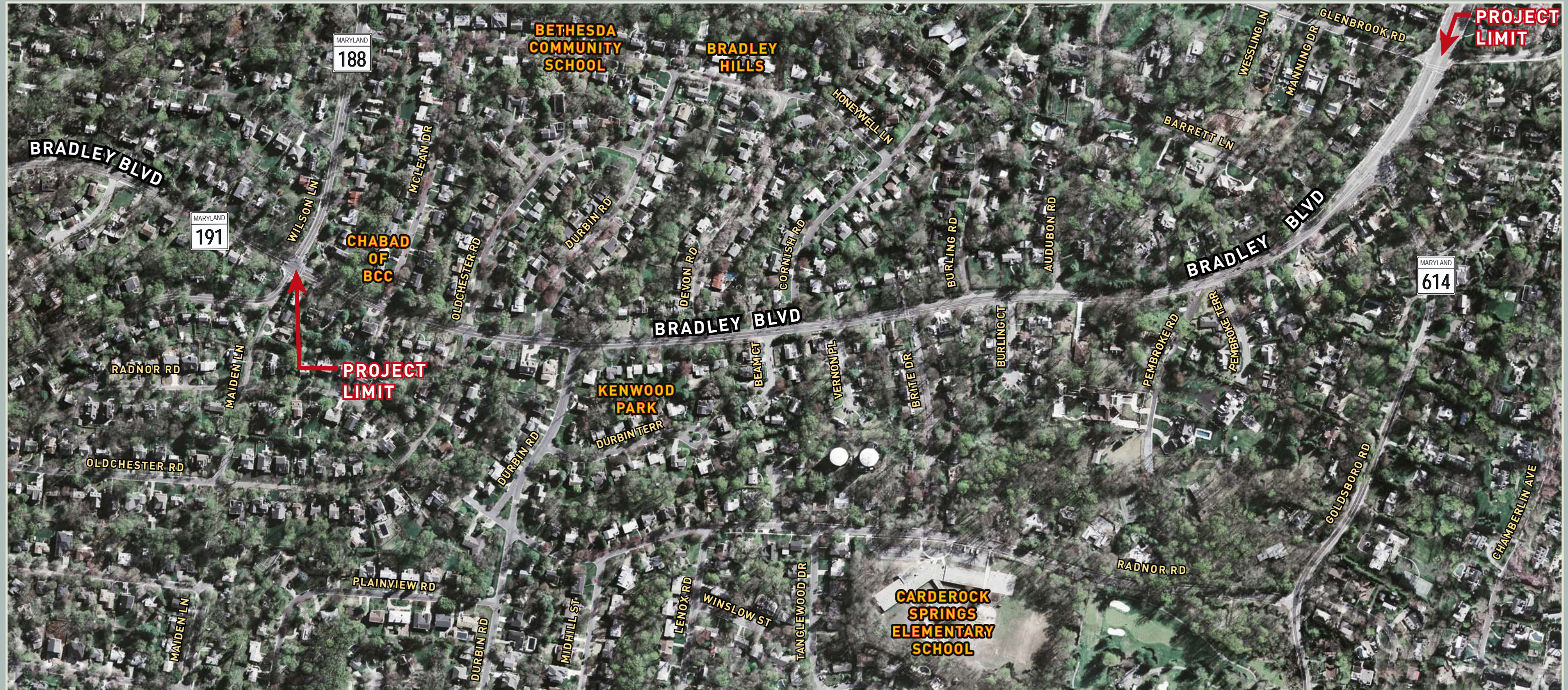
TABLE 1 - Summary of Existing Pedestrian Facilities

Intersection/Roadway	Existing Traffic Signal Control	Existing Marked Crosswalk
Bradley Boulevard at Wilson Lane	●	●
Bradley Boulevard between Wilson Lane and Brite Drive		
Bradley Boulevard at Brite Drive		●
Bradley Boulevard between Brite Drive and Goldsboro Road		
Bradley Boulevard at Goldsboro Road	●	●



BRADLEY BOULEVARD BIKEWAY PROJECT

FIGURE 1: SITE MAP



There are intermittent sidewalk facilities throughout the study area as follows:

- Along both sides of Bradley Boulevard from Glenbrook Road to Goldsboro Road – consisting of a five foot sidewalk with no grass buffer.
 - Along the north side of Bradley Boulevard from Goldsboro Road to Barrett Lane – consisting of five to six foot wide sidewalks with a grass buffer of varying width.
 - Bradley Boulevard at Wilson Lane – short segments of six to seven foot wide sidewalks on the northwest and southwest corners of the intersection.
 - Bradley Boulevard at Durbin Road – short segment adjacent to EB Bradley Boulevard on the northwest corner of the intersection.
2. Existing Bikeways: Shared Use Paths, Shared Roadways and On-Road Bikeable Shoulders

Bradley Boulevard currently does not have dedicated bicycle lanes. Bradley Boulevard intersects the Capital Crescent Trail and is in close proximity to the North Bethesda Trail (also known as the Bethesda Trolley Trail) near the study area. There are also on-road bike lanes on Fairfax Road and Little Falls Parkway just east of the study area.

According to the Montgomery County's *Countywide Bikeways Functional Master Plan*, dual bikeways (shared use path and on-road bikeable shoulders) are proposed on Bradley Boulevard from Persimmon Tree Road in the west to Wisconsin Avenue in the east, which includes the study area.

3. Geometric Configuration and Traffic Control

The existing travel lanes on Bradley Boulevard vary from 11' to 13', and average 11.5'. The existing shoulders on Bradley Boulevard vary from 2' to 12', and average 4'.

There are two signalized intersections within the study area on Bradley Boulevard that were analyzed. **Bradley Boulevard at Wilson Lane** is controlled by a two-phase traffic signal. At this intersection, Bradley Boulevard is a two-lane roadway. The WB lane is 13' wide east of Wilson Lane and 11.5' wide west of Wilson Lane. The EB lane is 11' wide west of Wilson Lane and 12' wide east of Wilson Lane. The posted speed limit on Bradley Boulevard is 30 mph. The nearest adjacent signalized intersections are located approximately 400 feet to the east of Goldsboro Road at Glenbrook Road, and approximately 0.5 miles to the west of Wilson Lane at Huntington Parkway. Adjacent land uses are primarily residential homes.

Bradley Boulevard at Goldsboro Road is controlled by a three-phase traffic signal, including exclusive/permissive left-turn phasing on the WB Bradley Boulevard approach. East of the intersection, Bradley Boulevard is a divided roadway with two 10' wide WB thru lanes, a separate 15' wide left-turn bay and three 11' wide EB lanes. Just west of the intersection, Bradley Boulevard has three 11' wide EB lanes, and one WB lane that is 18' wide, but narrows down to 12.5' approximately 330' west of the intersection.

At its intersection with Bradley Boulevard, **Wilson Lane** is a two-lane roadway. The NB lane is 11' wide south of the intersection and 13' wide north of the intersection. The SB lane is 11.5' wide north of the intersection and 11' wide south of the intersection. The posted speed limit on Wilson Lane is 30 mph. The nearest signalized intersections on Wilson Lane are located approximately 0.75 miles to the south at Whittier Boulevard and approximately 0.9 miles to the north at Old Georgetown Road (MD 187). Adjacent land uses are primarily residential homes.

At its intersection with Bradley Boulevard, *Goldsboro Road* is a two-lane roadway. The NB approach includes a separate left-turn lane and right-turn lane, both of which are 11' wide. The SB lane along this approach is 22' wide, which immediately narrows down to approximately 12'. There is no separate SB approach. The posted speed limit on Goldsboro Road is 30 mph. The nearest signalized intersection on Goldsboro Road is located approximately 0.9 miles to the south at River Road (MD 190). Adjacent land uses are primarily residential homes.

4. Travel Speeds

Vehicle travel speeds were measured along Bradley Boulevard between 10:45 AM and 1:00 PM on Thursday, April 23, 2009. Travel speeds were recorded at Wilson Lane, Brite Drive, and Goldsboro Road. Marked crosswalks across Bradley Boulevard are currently located at the Wilson Lane, Brite Drive, and Goldsboro Road intersections. Radar speed distributions are enclosed in Appendix A, and results are summarized in Table 2.

As indicated, Bradley Boulevard motorists are driving 4 to 9 mph above the posted 30-mph speed limit under free-flow conditions. During this period, vehicle speeds ranged from 24 to 53 mph.

TABLE 2 - Travel Speed Data Summary

Criteria	at Wilson Lane		at Brite Drive		at Goldsboro Road	
	WB	EB	WB	EB	WB	EB
Posted Speed Limit	30 mph	30 mph	30 mph	30 mph	30 mph	30 mph
85th Percentile Speed	36 mph	37 mph	37 mph	38 mph	39 mph	34 mph
% Exceeding Speed Limit	74%	78%	80%	84%	79%	58%
Mean Speed	32.9 mph	33.3 mph	33.8 mph	34.7 mph	34.5 mph	31.0 mph
High/Low Speed	43/27 mph	40/26 mph	52/27 mph	49/26 mph	53/27 mph	39/24 mph

5. Peak Hour Delays/Queues

During the majority of the day, motorists in queues were observed clearing the intersections during most cycles. Queuing analyses are included in Appendix B, and results are summarized in Table 3.

At the Bradley Boulevard at Wilson Lane intersection, the EB (AM) and WB (PM) queues on Bradley Boulevard were typically too long to be measured. During the AM peak period, EB left-turn queues of 4 or more vehicles in length would slow/completely block through traffic, not allowing through motorists to clear the intersection. During the PM peak period, slow-moving WB traffic west of Wilson Lane queued to, and periodically through the intersection, prohibiting WB traffic from clearing the intersection.

At the Bradley Boulevard at Goldsboro Road intersection, the longest turn queues form in the WB left-turn lane during the **PM peak hour**. All of these lefts which are in queue at the beginning of the green interval clear during the exclusive left-turn arrow phase.

TABLE 3 - Peak Hour Queuing Summary along Bradley Boulevard

Peak Hour	Intersection Approach – Movement	Longest Queue ¹	Average Queue ¹	Vehicles Not Cleared ²
7:45-8:45 AM	EB (All Vehicles) at Wilson Lane	20	20	*
	WB Lefts at Goldsboro Road	15	6.3	0 (1)
	EB Thrus at Goldsboro Road	10	6.2	0 (0)
5:30-6:30 PM	WB (All Vehicles) at Wilson Lane	20	20	*
	WB Lefts at Goldsboro Road	18	8.8	0 (0)
	EB Thrus at Goldsboro Road	8	4.4	0 (0)

¹ Per cycle

² Total vehicles during peak hour (vehicles in parentheses represent # vehicles clearing during yellow & all-red intervals)

* Vehicles not cleared cannot be determined because the excessive queue lengths are too long to be determined

6. Sight Distances

Stopping sight distances were measured at both signalized intersections as well as the marked crosswalk location at Brite Drive. Table 4 provides a summary of stopping sight distance criteria and available sight distances on the intersection approaches. Because the radar speed study shows 85th percentile speeds of 34 to 39 mph throughout the study area, a design speed of 40 mph was used for all approaches. As indicated, all available sight distances exceed criteria.

TABLE 4 - Stopping Sight Distances

Location	Approach	Criteria	Available Sight Distance	Criteria Met
Wilson Lane	WB	305'	535'	Yes
	EB	305'	850'	Yes
Brite Drive	WB	305'	710'	Yes
	EB	305'	725'	Yes
Goldsboro Road	WB	305'	440'*	Yes
	EB	305'	560'	Yes

* Sight distance extends past next intersection (Glenbrook Drive), which is 440' from Goldsboro Road

7. Traffic Volumes

A 13-hour turning movement count was conducted at the intersection of Bradley Boulevard at Goldsboro Road from 6:00 AM to 7:00 PM on Tuesday, April 21, 2009. A 13-hour turning movement count was conducted at the intersection of Bradley Boulevard at Wilson Lane from 6:00 AM to 7:00 PM on Thursday, April 23, 2009. A 5-hour turning movement count was performed at the intersection of Bradley Boulevard at Goldsboro Road from 7:00 AM to 12:00 Noon on Saturday, April 25, 2009. Peak hour traffic volumes are shown in Figures 1, 2, and 3. Appendix C contains the full count data. Peak hour vehicular volume characteristics are shown in Tables 5A and 5B. Peak hour pedestrian and bicycle volumes are shown in Tables 5C and 5D. As indicated, the predominant vehicular through movements along Bradley Boulevard are EB during the morning peak period and WB during the evening peak period. The predominant bicycle movements occur on the weekend from 7:00 AM to 8:00 AM.

FIGURE 2 - Existing Traffic Volumes (Weekday AM Peak Hour)

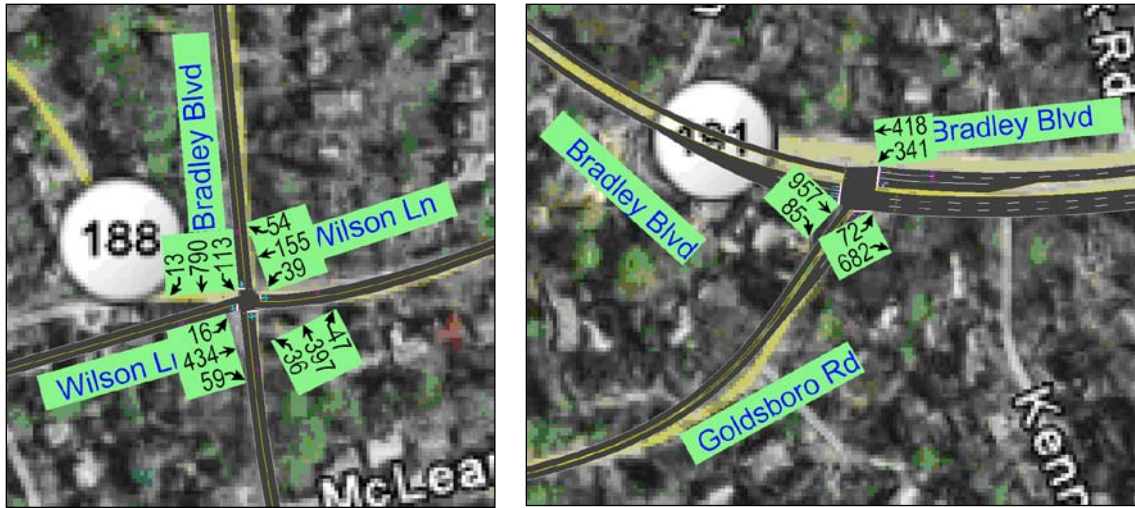


FIGURE 3 - Existing Traffic Volumes (Weekday PM Peak Hour)

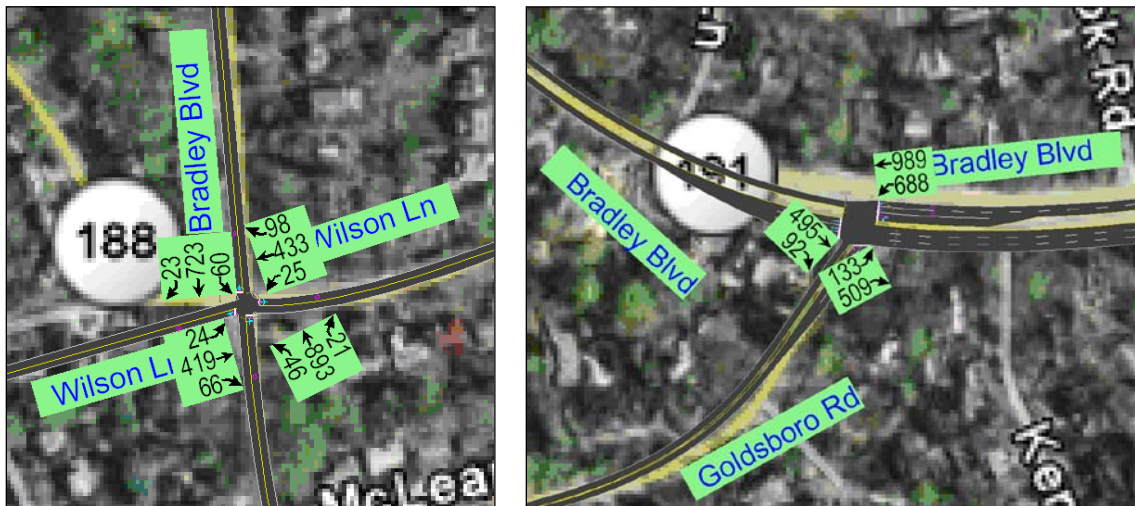


FIGURE 4 - Existing Traffic Volumes (Saturday Peak Hour)

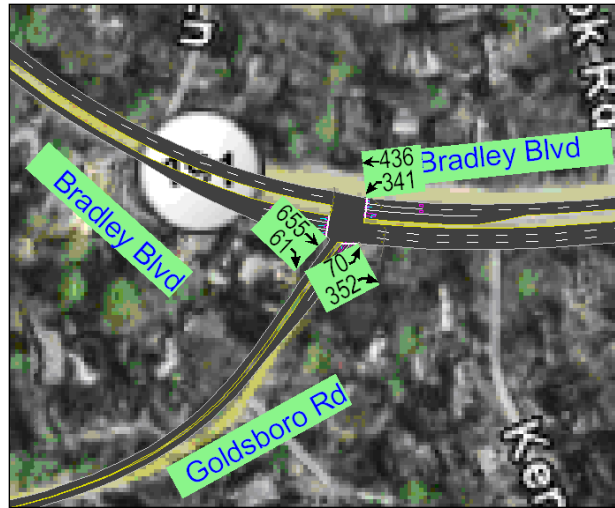


TABLE 5A - Peak Hour Vehicular Volume Characteristics – Bradley Boulevard at Wilson Lane

Peak Hour	Predominant Flow – Movement (vph)			
	Bradley Boulevard		Wilson Lane	
	Turns	Thru	Turns	Thru
Weekday 8:15 – 9:15 AM	EBL (113)	EB (790)	SBL (39) NBR (59)	NB (434)
Weekday 5:45 – 6:45 PM	EBL (60)	WB (893)	SBL (25) SBR (98)	NB (419) SB (433)

TABLE 5B - Peak Hour Vehicular Volume Characteristics – Bradley Boulevard at Goldsboro Road

Peak Hour	Predominant Flow – Movement (vph)			
	Bradley Boulevard		Goldsboro Road	
	Turns	Thru	Lefts	Rights
Weekday 7:45 – 8:45 AM	WBL (341)	EB (957)	NBL (72)	NBR (682)
Weekday 5:30 – 6:30 PM	WBL (688)	WB (959)	NBL (133)	NBR (509)
Saturday 11:00 AM – 12:00 Noon	WBL (341)	EB (655)	NBL (70)	NBR (352)

**TABLE 5C - Peak Hour Pedestrian/Bicycle Volume Characteristics –
Bradley Boulevard at Wilson Lane**

Peak Hour	Bradley Boulevard				Wilson Lane			
	Pedestrians		Bicycles		Pedestrians		Bicycles	
	EB	WB	EB	WB	NB	SB	NB	SB
Weekday 8:15 – 9:15 AM	0	6	0	9	0	0	7	3
Weekday 5:45 – 6:45 PM	2	16	4	3	2	6	1	5
Weekday 12:00 Noon– 1:00 PM Peak hour of bicycle traffic	8	0	0	25	0	0	3	2

**TABLE 5D - Peak Hour Pedestrian/Bicycle Volume Characteristics –
Bradley Boulevard at Goldsboro Road**

Peak Hour	Bradley Boulevard				Goldsboro Road	
	Pedestrians		Bicycles		Pedestrians	Bicycles
	EB	WB	EB	WB	NB	NB
Weekday 7:45 – 8:45 AM Peak hour of vehicular and bicycle traffic	0	0	0	0	11	1
Weekday 5:30 – 6:30 PM	0	0	0	0	2	0
Saturday 11:00 AM – 12:00 Noon	0	1	9	9	1	1
Saturday 7:00 – 8:00 AM Peak hour of bicycle traffic	0	0	5	71	2	3

8. Existing Level of Service

Under MSHA's Critical Lane Volume (CLV) analysis, the Bradley Boulevard intersections with Wilson Lane and Goldsboro Road, respectively, operate at **LOS F/B during the AM peak hour and LOS F/B during the PM peak hour**. It was noted during peak hour observations that through/right-turning vehicles bypass left-turning vehicles at the Bradley Boulevard at Wilson Lane intersection along the Bradley Boulevard approaches and the SB Wilson Lane approach, creating effective left-turn/bypass lanes along these three approaches. This intersection was analyzed with left-turn lanes to more accurately reflect existing traffic conditions. With the effective left-turn lanes at the Bradley Boulevard at Wilson Lane intersection, the intersections operate at **LOS D/B during the AM peak hour and LOS E/B during the PM peak hour (See Table 6)**. CLV worksheets can be found in Appendix D.

**TABLE 6 – Existing Intersection CLV Summary
(With Effective Turn Lanes at the Bradley Boulevard at Wilson Lane Intersection)**

Intersection	AM Peak Hour			PM Peak Hour		
	CLV	LOS	V/C Ratio	CLV	LOS	V/C Ratio
Bradley Boulevard at Wilson Lane	1403	D	0.88	1532	E	0.96
Bradley Boulevard at Goldsboro Road	1099	B	0.69	1056	B	0.66

Using Synchro/SimTraffic analysis with current lane configurations and observed green times, the Bradley Boulevard intersections with Wilson Lane and Goldsboro Road, respectively, operate at ***LOS F/C during the AM peak hour and LOS F/F during the PM peak hour***. Because through/right-turning vehicles were observed bypassing left-turning vehicles at the Bradley Boulevard at Wilson Lane intersection along the Bradley Boulevard approaches and the SB Wilson Lane approach, the network was analyzed with left-turn lanes at those approaches to more accurately reflect existing traffic conditions. With the effective left-turn lanes at the Bradley Boulevard at Wilson Lane intersection, both intersections experience improved operations, which more closely represent actual conditions. The Bradley Boulevard at Goldsboro Road intersection experiences improvements due to reduced queues from the Bradley Boulevard at Wilson Lane intersection. With the effective left-turn lanes at the Bradley Boulevard at Wilson Lane intersection, the intersections operate at ***LOS D/C during the AM peak hour and LOS F/C during the PM peak hour (See Table 7)***. Detailed SimTraffic output can be found in Appendix E.

**TABLE 7 – Existing Intersection SimTraffic Summary
(With Effective Turn Lanes at the Bradley Boulevard at Wilson Lane
Intersection)**

Approach	AM Peak Hour			PM Peak Hour		
	Delay	LOS	95 th % Queue (ft)	Delay	LOS	95 th % Queue (ft)
Bradley Boulevard at Wilson Lane						
EB Bradley Boulevard	34.6	C	762	88.3	F	890
WB Bradley Boulevard	18.9	B	287	38.9	D	1064
NB Wilson Lane	99.7	F	1096	874.6	F	1884
SB Wilson Lane	37.5	D	211	108.2	F	1169
Intersection Summary	46.8	D	--	181.6	F	--
Bradley Boulevard at Goldsboro Road						
EB Bradley Boulevard	22.8	C	216	16.7	B	161
WB Bradley Boulevard	18.9	B	242	37.5	D	441
NB Goldsboro Road	26.8	C	233	19.6	B	132
Intersection Summary	22.9	C	--	28.6	C	--

9. Bus Ridership

Bus ridership volumes were provided by Montgomery County's Ride On Transit Services department. Bus route 36 travels both EB and WB through the study area. Bus ridership includes a total of 44 passengers entering and exiting the WB buses on an average weekday, and 44 entering and exiting the EB buses on an average weekday. This bus route does not operate on weekends. Table 8 provides a summary of bus ridership in this area. The bus stops along the EB route that experience the greatest usage are at Brite Drive (17 riders/day) and Durbin Road (9 riders/day). The Brite Drive bus stop is served by a marked crosswalk. The bus stops along the WB route that experience the greatest usage are at Audubon Road (15 riders/day), Durbin Road (9 riders/day), and Burling Court (7 riders/day). The most heavily-traveled time periods are during the AM period (19 riders/day in the area) and the mid-day period (17 riders/day) along the EB route, and during the PM period (18 riders/day) along the WB route.

TABLE 8 – Bus Route 36 Ridership Summary

Bus Stop	AM		MID-DAY		PM		NIGHT		TOTAL	
	4:59 AM - 8:56 AM		8:57 AM – 3:56 PM		3:57 PM – 6:56 PM		After 6:57 PM			
	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Route 36 Eastbound FY09 Weekday										
Wilson Lane	0	0	0	3	0	0	0	0	0	3
Oldchester Road	1	0	1	0	0	0	0	0	2	0
Durbin Road	6	0	2	0	1	0	0	0	9	0
Beam Court	2	0	0	0	0	0	0	0	2	0
Brite Drive	6	0	6	1	4	0	0	0	16	1
Audubon Road	2	0	0	0	2	0	0	0	4	0
Pembroke Road	0	0	0	0	0	0	0	0	0	0
Goldsboro Road	0	0	1	1	0	0	0	0	1	1
Glenbrook Road	2	0	2	0	1	0	0	0	5	0
Total	19	0	12	5	8	0	0	0	39	5
Route 36 Westbound FY09 Weekday										
Goldsboro Road	0	0	0	0	0	0	0	0	0	0
Pembroke Road	0	0	0	1	0	0	0	0	0	1
Audubon Road	0	6	1	2	0	4	0	2	1	14
Burling Court	0	2	0	1	0	4	0	0	0	7
Cornish Road	0	0	0	0	0	4	0	0	0	4
Durbin Road	0	2	0	3	0	3	0	1	0	9
Oldchester Road	0	0	0	0	0	2	0	0	0	2
Wilson Lane	0	3	1	1	0	1	0	0	1	5
Total	0	13	2	8	0	18	0	3	2	42

10. Field Observations

Bradley Boulevard at Wilson Lane

- EB through vehicles typically bypass EB left-turning vehicles at a relatively high rate of speed, as long as the EB left-turn queue is three vehicles or less.
- The sight distance of EB lefts is blocked by WB lefts. WB through vehicles bypass waiting WB lefts, resulting in conflicts between EB lefts and WB through vehicles. At these times, WB through vehicles had to brake to avoid EB left-turning vehicles.
- EB and WB queues consistently extend to more than twenty vehicles during the AM and PM peak hours, respectively.
- On both Bradley Boulevard approaches and on the SB Wilson Lane approach, through vehicles use the shoulders to bypass left-turning vehicles, or right-turning vehicles use the shoulders to bypass left/through vehicles.

- At 5:38 PM, slow moving traffic west of this intersection queued through the intersection, making the intersection capacity-constrained. This scenario repeated three more times until 5:50 PM.
- During the PM peak hour, NB and SB queues of greater than ten vehicles frequently occurred.
- Throughout the PM peak hour, many EB left-turning vehicles were unable to turn during the green phase due to the heavy WB through movement and instead two to three vehicles would turn during the all-red phase, resulting in a potential safety issue.

Bradley Boulevard at Goldsboro Road

- During the AM peak hour, EB vehicles typically arrive in platoons at the start of their green phase and either do not come to a complete stop, or stop for two seconds or less.
- During the AM peak hour, NB rights form queues of seven to nineteen vehicles, and typically clear during the WB left-turn phase, which follows the NB phase. The NB phase always maxes out during this peak hour. An overlap phase would decrease delay for these NB right-turning motorists.
- During the PM peak hour, NB right-turning vehicles typically form short queues of three vehicles or less; there were two observed queues which were significantly longer (ten vehicles and twelve vehicles).
- WB queues developed west of this intersection from 5:50 to 6:10 PM; while these queues always cleared the intersection, they did cause increases in delay for WB through vehicles.
- During the PM peak hour, WB left-turning queues extended beyond the turn bay and spilled over into one of the through lanes, and extended as far as to the upstream signalized intersection of Bradley Boulevard at Glenbrook Road. Vehicles were blocked from entering the intersection at Glenbrook Road once during the PM peak hour.
- The two WB through lanes merge into one lane just as vehicles pass through the intersection, creating a potential safety issue. There are no pavement markings directing motorists to merge. During the AM peak hour, when WB through traffic is lighter, most vehicles use the left of the two through lanes to avoid merging in the intersection. During the PM peak hour, when traffic volumes are greater, vehicles slow down in the middle of the intersection to merge just as they clear the intersection. A local resident whose house is along this intersection remarked that the lack of a merging area represents a safety concern.

Pedestrian/Bicyclist Observations

- A group of approximately twenty bicyclists were observed traveling WB on Bradley Boulevard through the study area at 12:30 PM on Thursday, April 23, 2009.
- A group of approximately 60 bicyclists were observed making a left turn from WB Bradley Boulevard onto Goldsboro Road just before 7:30 AM on Saturday, April 25, 2009.
- Bicyclists at the Bradley Boulevard at Wilson Lane intersection were observed obeying the traffic signal when crossing the intersection.

11. Crash History

Crash data provided by the Montgomery County Traffic Engineering and Operations Section indicates that there were sixty-two (62) reported crashes in the study area for the five-year period between 2003 and 2007, including eighteen (18) reported crashes at the Wilson Lane intersection and nineteen (19) reported crashes at the Goldsboro Road intersection. Detailed crash data is included in Appendix F, summarized in Tables 9A, 9B, and 9C, and discussed below.

Crash data was compiled along all approaches to the two signalized intersections that were analyzed of Bradley Boulevard at Wilson Lane and Bradley Boulevard at Goldsboro Road. Crashes were also compiled along Bradley Boulevard between the two intersections. Of the sixty-two crashes, fifty-six (56) occurred along Bradley Boulevard, five (5) occurred along Wilson Lane, and one (1) occurred along Goldsboro Road.

Severity: No crash-related fatalities occurred during the five-year period. Thirty of the sixty-two (48 percent) involved crash-related injuries, including eleven at the Wilson Lane intersection and eight at the Goldsboro Road intersection.

Type: Twenty-three of the crashes involved left-turn collisions. Eighteen crashes involved rear-end collisions. There were seven angle collisions, all of which were at the Wilson Lane intersection. Nine collisions involved a fixed object. Three crashes involved a vehicle colliding with a bicyclist. Two of these crashes occurred at the intersection of Bradley Boulevard at Goldsboro Road, and one occurred near the intersection of Bradley Boulevard at Pembroke Terrace.

Cause: Fifteen of the sixty-two crashes (24 percent) occurred during darkness. Twenty (32 percent) occurred on a wet pavement surface. Two involved alcohol.

Crash Patterns: Four intersections have relatively high concentrations of crashes. These crash patterns and potential mitigation strategies are discussed below.

- **Wilson Lane Intersection** – This intersection had a total of eighteen crashes during the five-year study period. Eleven crashes resulted in personal injury. Four crashes were left-turn crashes, including three crashes involving WB left-turning motorists and one involving an EB left-turn. Five crashes were rear-end collisions, including one along WB Bradley Boulevard, three along EB Bradley Boulevard, and one along NB Wilson Lane. This intersection has one lane along each approach, and during AM and PM peak hour observations, vehicles were seen bypassing left-turning vehicles along the shoulder. When vehicles make this maneuver, left-turning vehicles have difficulty seeing opposing through vehicles. Installation of left-turn bays along the Bradley Boulevard approaches would provide a safe storage location for left-turning

vehicles and improve sight distance, thereby decreasing the likelihood of rear-end and left-turn crashes. There were eight right angle crashes, including three crashes involving WB Bradley Boulevard/NB Wilson Lane motorists, and two each involving WB/SB and EB/NB motorists. Restricting right turns on red along these approaches would potentially reduce the likelihood of right angle crashes. There was also a pedestrian collision involving a vehicle from WB Bradley Boulevard. A collision diagram of this intersection is provided in Figure 5.

- Goldsboro Road Intersection*** – This intersection had a total of nineteen crashes during the study period, eight of which resulted in personal injury. Twelve crashes were the result of vehicles making left turns. Six of these left-turn crashes resulted in personal injury, including the injuries of two bicyclists in separate incidents. During one of these crashes, the bicyclist was struck by a vehicle traveling EB turning left. During the other crash, the vehicle was traveling WB turning left. Nine of the left-turn crashes involved drivers turning left from WB Bradley Boulevard onto Goldsboro Road. Two of the WB left-turn crashes occurred during the AM peak period and two occurred during the PM peak period. Two of the three EB left-turn crashes occurred during the PM peak period. Installation of exclusive phasing for WB left-turns, which would comply with MSHA's Left-Turn Phasing Guidelines (see Table 10), would reduce the likelihood of left-turn crashes along this approach. Currently, WB Bradley Boulevard merges from two lanes to one west of the intersection, with no marked room to merge. The proposed merge area described in Section IV, Potential Improvements, may mitigate safety issues here.
- Oldchester Road Intersection*** – This intersection had a total of five crashes during the study period. One crash, a head-on crash caused by a driver asleep at the wheel, involved injury. Two crashes were rear-end collisions, both in the WB direction. One of these crashes occurred during the AM peak and one occurred during the PM peak. Two crashes involved a fixed object.
- Durbin Road East Intersection*** – Bradley Boulevard has two intersections with Durbin Road. The easternmost of the two intersections had a total of four crashes during the study period. All four crashes were WB left-turn crashes, and three of these crashes occurred between 3:00 and 5:00 PM. The fourth crash occurred during the 10:00 PM hour. There is a vertical crest approximately 130 feet away at the west intersection, which may be restricting sight distance for WB left-turning vehicles.

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

FIGURE 5: BRADLEY BOULEVARD AT WILSON LANE COLLISION DIAGRAM

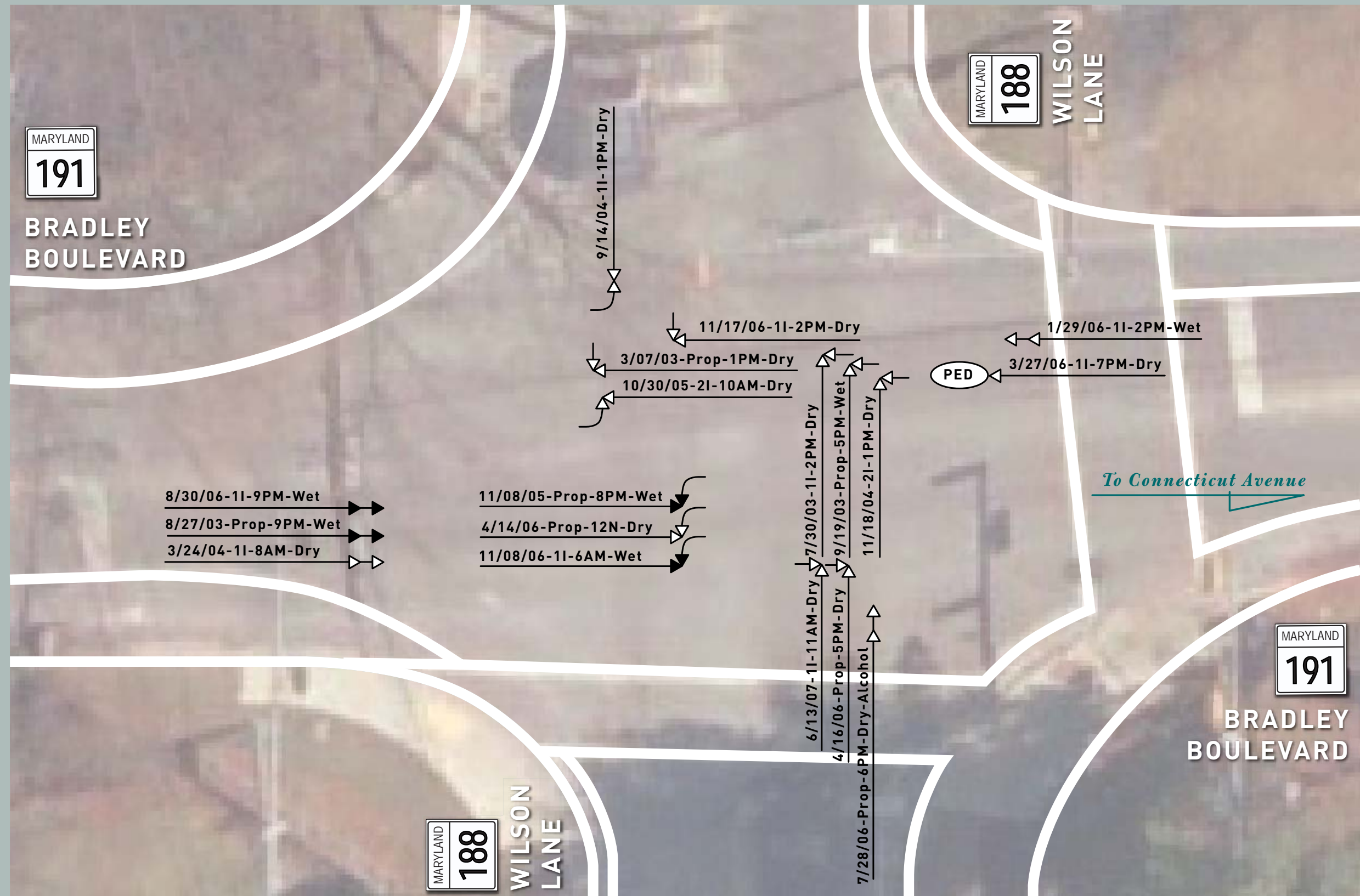


TABLE 9A - Crash Data Summary – Bradley Boulevard at Wilson Lane

Crashes	2003	2004	2005	2006	2007	2003 – 2007	
						Total	Percent
Severity							
Fatal	0	0	0	0	0	0	0%
Injury	1	3	1	5	1	11	61%
Property Damage	3	0	1	3	0	7	39%
Total	4	3	2	8	1	18	100%
Type							
Left-Turn	0	0	2	2	0	4	22%
Rear-End	1	1	0	3	0	5	28%
Angle	3	2	0	2	1	8	44%
Fixed Object	0	0	0	0	0	0	0%
Sideswipe	0	0	0	0	0	0	0%
Pedestrian	0	0	0	1	0	1	6%
Case							
Wet Surface	3	0	1	3	0	7	39%
Darkness	2	0	1	2	0	5	28%
Alcohol Related	0	0	0	1	0	0	5%

TABLE 9B - Crash Data Summary – Bradley Boulevard at Goldsboro Road

Crashes	2003	2004	2005	2006	2007	2003 – 2007	
						Total	Percent
Severity							
Fatal	0	0	0	0	0	0	0%
Injury	0	0	4	2	2	8	42%
Property Damage	2	4	1	2	2	11	58%
Total	2	4	5	4	4	19	100%
Type							
Left-Turn	1	2	3	4*	2	12	63%
Rear-End	0	1	0	0	2	3	16%
Angle	0	0	0	0	0	0	0%
Fixed Object	1	0	1	0	0	2	11%
Sideswipe	0	0	1	0	0	1	5%
Head-On	0	1	0	0	0	1	5%
Case							
Wet Surface	0	1	2	0	0	3	16%
Darkness	0	0	2	0	0	2	11%
Alcohol Related	0	0	1	0	0	1	5%

*Two of these four crashes involve a vehicle colliding with a bicyclist.

TABLE 9C - Crash Data Summary – Bradley Boulevard between Wilson Lane and Goldsboro Road

Crashes	2003	2004	2005	2006	2007	2003 – 2007	
						Total	Percent
Severity							
Fatal	0	0	0	0	0	0	0%
Injury	2	0	4	3	2	11	44%
Property Damage	3	3	2	4	2	14	56%
Total	5	3	6	7	4	25	100%
Type							
Left-Turn	1	1	1	1	2	6	24%
Rear-End	2	1	3	3	1	10	40%
Angle	0	0	0	0	0	0	0%
Fixed Object	2	1	2	2	0	7	28%
Sideswipe	0	0	0	0	0	0	0%
Head-On	0	0	0	1	0	1	4%
Collision with Bicyclist	0	0	0	0	1	1	4%
Case							
Wet Surface	4	1	3	3	0	11	44%
Darkness	1	2	0	3	3	9	36%
Alcohol Related	1	0	0	0	0	1	4%

III. Traffic Analyses

1. Left-Turn Bay Warrant Analysis

The Transportation Research Board's (TRB) *NCHRP Report 279, Intersection Channelization Design Guide (1985)*, states that the advantages of exclusive left-turn lanes at signalized intersections includes their proven safety effectiveness, effectiveness in improving intersection capacity, flexibility in improving intersection capacity, flexibility in possible signal phasing schemes, and understanding of operation by the driving public. *NCHRP Report 279* offers the following general "rules-of-thumb" for evaluating left-turn lane needs at signalized intersections, which were used to assess the four approaches of the Bradley Boulevard at Wilson Lane intersection.

- **Left-Turn Volumes:** *Separate left-turn lanes are required if 1) the left-turn volume exceeds 20 percent of total approach volumes; or 2) the left-turn volume exceeds 100 vph in peak periods.* No left-turn volumes meet the first criterion. The left-turn movement with the highest percentage is along SB Wilson Lane, which comprises 16% of the total approach volume during the AM peak hour. The only left-turn volume that exceeds 100 vph in a peak period is the EB Bradley Boulevard left-turn movement, which has an AM peak hour volume of 113 vph.

- **Accidents:** Left-turn lanes should be considered on intersection approaches when a total of 4 or more left-turn accidents occur in 12 months, or 6 or more in 24 months. There were 3 WB left-turn crashes, 1 EB left-turn crash, and 1 SB left-turn crash during the five-year study period; therefore, this criterion is not met.

Although criteria is only met along the EB Bradley Boulevard approach, observations indicated that separate left-turn lanes along the WB Bradley Boulevard approach would help to process through and right-turning traffic more safely and efficiently, especially during peak hours. Additionally, installation of a WB left-turn lane would match the proposed EB left-turn lane, and would improve sight distance for left turning vehicles.

2. Left-Turn Signal Phasing Evaluation

MSHA's Left-Turn Phasing Guidelines flowchart and the October 5, 1982 memorandum from Montgomery County's Traffic Operations Section entitled "Guidelines for Selection of Left Turn Phase Type" (see Appendix G) were followed to evaluate left-turn phasing needs on the four approaches of the Bradley Boulevard at Wilson Lane intersection, and the WB approach of the Bradley Boulevard at Goldsboro Road intersection. Table 10 summarizes the results. As indicated, the existing permissive signal phasing is recommended for all approaches at the Bradley Boulevard at Wilson Lane intersection. At the Bradley Boulevard at Goldsboro Road intersection, it is recommended that exclusive phasing be implemented. This movement currently operates under exclusive/permissive phasing.

In order to specifically quantify that which represents a "**severe left-turn accident problem**" that could be corrected by exclusive phasing" and "a pattern of left turning accidents" (see Appendix G), several recognized traffic engineering sources were researched. Sample left-turn accident criteria indicating a need for exclusive left-turn phasing are as follows:

- **Institute of Transportation Engineers' (ITE) Manual of Traffic Signal Design** – Chapter 4 suggested guidelines. *Consider left-turn phasing if a critical number of left-turn accidents have occurred; that is, for one approach, four left-turn accidents in one year or six in two years are critical; or for both approaches, six left-turn accidents in one year or ten in two years are critical.*
- **Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD 2000)** – Traffic Signal Warrant 6 criterion B (Section 4C.08) can be applied to left-turn phasing needs. *Five or more reported crashes of types susceptible to correction by an exclusive left-turn traffic control signal phase, have occurred within a 12-month period (per approach), each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash.*
- **Transportation Research Board's Transportation Research Record 1069, Guidelines for Selecting Type of Left-Turn Phasing** – Data provided to determine "whether the number of left-turn accidents is unusually high" includes an average annual left-turn accident rate for exclusive/ permissive phasing of 3.38. If a rate exceeds this number, then exclusive phasing is deemed necessary for that approach.

Each approach of the Bradley Boulevard at Wilson Lane intersection experienced a maximum of three left-turn accidents in a two-year period; therefore, left-turn phasing criteria from *ITE's Manual of Traffic Signal Design* is not met at this intersection. Exclusive left-turn phasing along WB Bradley Boulevard at Goldsboro Road is recommended based on the high-volume cross product. Additionally, there were six (6) left-turn crashes along this movement during the two-year period of 2006 to 2007; therefore, installation of exclusive phasing for this movement would also be recommended based on left-turn phasing criteria from *ITE's Manual of Traffic Signal Design*. This approach currently operates under exclusive/permissive phasing, and during the AM peak hour, a total of nineteen (19) vehicles which were in queue at the beginning of the exclusive phase were observed turning left during the permissive phase. During the PM peak hour, while all queues clear during the exclusive phase, some vehicles which arrive after the start of the exclusive phase clear during the permissive phase. Installation of exclusive phasing only as opposed to exclusive/permissive phasing will result in more delay and queuing for WB left-turning vehicles and will increase the likelihood of WB queues blocking the Bradley Boulevard at Glenbrook Road intersection; however, it is still recommended considering the high number of left-turn crashes along this approach.

TABLE 10 - Left-Turn Signal Phasing Evaluation Summary

Approach – Direction	Step #	MSHA Criteria	Response/Conditions	Result/Next Step
Bradley Boulevard at Wilson Lane				
Bradley Boulevard – EB at Wilson Lane	I	Is left-turn demand → 2 per cycle (average in highest hour)?	YES: 113 lefts/30 cycles per hour = 3.8 lefts/cycle (8:15 – 9:15 AM)	II
	II	How many opposing lanes?	ONE	III
	III	Is volume cross product → 70,000 (in highest hour)?	NO: 60 x 893 = 53,580	IV
	IV	Is the opposing speed → 45 mph	NO: 85 th percentile speed on WB Bradley Boulevard is 36 mph	V
	V	Is sight distance restricted?	NO	VI
	VI	Is there a severe left-turn accident problem that could be corrected by exclusive phasing?	NO: One (1) EB Bradley Boulevard left-turn accident in 2006.	Permissive Phasing (Existing)
Bradley Boulevard – WB at Wilson Lane	I	Is left-turn demand → 2 per cycle (average in highest hour)?	NO: 46 lefts/30 cycles per hour = 1.5 lefts/cycle (5:45 – 6:45 PM)	VI
	VI	Is there a severe left-turn accident problem that could be corrected by exclusive phasing?	NO: One (1) WB Bradley Boulevard left-turn accident in 2005 and two (2) in 2006.	Permissive Phasing (Existing)
Wilson Lane – NB at Bradley Boulevard	I	Is left-turn demand → 2 per cycle (average in highest hour)?	NO: 24 lefts/30 cycles per hour = 0.8 lefts/cycle (5:15 – 6:15 PM)	VI
	VI	Is there a severe left-turn accident problem that could be corrected by exclusive phasing?	NO: Zero (0) NB Wilson Lane left-turn accidents from 2005 to 2007	Permissive Phasing (Existing)
Wilson Lane – SB at Bradley Boulevard	I	Is left-turn demand → 2 per cycle (average in highest hour)?	NO: 39 lefts/30 cycles per hour = 2.1 lefts/cycle (8:15 – 9:15 AM)	VI
	VI	Is there a severe left-turn accident problem that could be corrected by exclusive phasing?	NO: One (1) SB Wilson Lane left-turn accident from 2005 to 2007	Permissive Phasing (Existing)
Bradley Boulevard at Goldsboro Road				
Bradley Boulevard – WB at Goldsboro Road	I	Is left-turn demand → 2 per cycle (average in highest hour)?	YES: 688 lefts/36 cycles per hour = 19.1 lefts/cycle (5:30 – 6:30 PM)	II
	II	How many opposing lanes?	THREE	III
	III	Is volume cross product → 144,000 (in highest hour)?	YES: 688 x 495 = 340,560	Exclusive Phasing

3. Queuing Analyses

MSHA's *Poisson* method was used to evaluate left-turn bay storage lengths on all approaches to the intersections of Bradley Boulevard at Wilson Lane and Bradley Boulevard at Goldsboro Road. Computation worksheets are included in Appendix H and results are summarized in Table 11.

TABLE 11 – Turn Bay Storage Length Summary

Approach – Direction		Available Storage	AM Peak Hour		PM Peak Hour		Recommended Storage Length
			Volume (vph)	Queue Length	Volume (vph)	Queue Length	
Bradley Boulevard at Wilson Lane							
Bradley Boulevard	EB Left	0'	36	75'	46	100'	100'
	WB Left	0'	113	175'	60	125'	175'
Wilson Lane	NB Left	0'	16	50'	24	50'	50'
	SB Left	0'	39	75'	25	50'	75'
Bradley Boulevard at Goldsboro Road							
Bradley Boulevard	WB Left	195'	341	375'	688	675'	675'
Goldsboro Road	NB Left	101'	72	125'	133	175'	175'

As indicated, the approaches at the Bradley Boulevard at Wilson Lane intersection would require turn bays of 50 to 175 feet if turn bays are installed. The existing turn bays at the Bradley Boulevard at Goldsboro Road intersection fall short of the computed length required on both approaches. As the longest observed queue along WB Bradley Boulevard was eighteen vehicles, only 450 feet of storage length (18 vehicles x 25 feet per vehicle) would be required to serve this approach; however, the intersection of Bradley Boulevard at Glenbrook Road, which is a signalized intersection, is approximately 400 feet from the Goldsboro Road intersection. When the eighteen vehicle length queue occurred, the queue temporarily extended into the Glenbrook Road intersection. As the 195 foot WB left-turn bay at Goldsboro Road is restricted by the 90 foot left-turn bay at Glenbrook Road, major reconstruction would be necessary

to increase WB left-turn storage. Signal timing modifications may result in improved operations and shorter WB left-turn queues at Goldsboro Road.

4. Crosswalk Evaluation

Currently, there are three crosswalks across Bradley Boulevard within the study area: at the Wilson Lane (WB approach), the Brite Drive (EB approach), and the Goldsboro Road (EB approach) intersections. The AASHTO Green Book recommends a minimum no-parking zone of 20 feet from all crosswalks on both the near and far sides of the intersection on all intersection legs for urban streets with 20 to 30 mph speed limits. While 20 feet is the minimum, 50 feet is desirable. A no-parking zone of 30 feet in advance of each signal, stop sign, and yield sign should also be provided. Currently, there is no parking adjacent to the existing crosswalks crossing Bradley Boulevard in this study area.

The existing crosswalks should remain in their current locations. SHA currently has a plan to reconstruct the traffic signal at Goldsboro Road. The project is currently on hold but is expected to begin within a year. SHA recently added the marked crosswalk on the west leg of the intersection after a resurfacing project. There is an existing sidewalk on the south side of Bradley Boulevard which extends from Goldsboro Road to Wisconsin Avenue and one on the north side which extends to Connecticut Avenue (along Bradley Boulevard and Bradley Lane). The Bradley Boulevard Improvements Project should maintain the new marked crosswalk at the Goldsboro Road intersection.

IV. Potential Improvements

Several potential improvement alternates could reduce delay and improve overall traffic operations at the study intersections. The following improvements are subject to review and approval by the State Highway Administration. Proposed improvements include the following:

- Bradley Boulevard at Wilson Lane:
 - Install turn bays along both Bradley Boulevard approaches to allow thru and right-turning vehicles to bypass left-turning vehicles safely, and to provide adequate sight distance for left-turning vehicles. These turn bays would reduce delay and queuing for thru and right-turning vehicles, as well as improve overall safety at the intersection. Turn bay storage length analysis was performed for each of the approaches to determine what storage length would be adequate. A summary of this analysis is shown in Table 11, along with recommended turn bay lengths. Turn bay storage computations can be found in Appendix H.
 - Restrict right turns on red along the Bradley Boulevard approaches to reduce the likelihood of right angle crashes.
 - The shared use path or sidewalk that will run along the north side of Bradley Boulevard will tie into the Wilson Lane sidewalk/path. The left turn bays along Bradley Boulevard will prevent through vehicles from using the shoulder to bypass left-turning vehicles. If the right turn on red restriction is implemented, then bicyclists and pedestrians that are approaching Wilson Lane on Bradley Boulevard during a red phase may turn on to Wilson Lane without any interference from right-turning vehicles.

- Bradley Boulevard at Goldsboro Road:
 - To allow WB traffic to safely merge, widen or restripe WB Bradley Boulevard west of the intersection and remove/relocate lane reduction warning signs along WB Bradley Boulevard per MD MUTCD requirements.
 - Lower-cost alternate (as designed and approved by SHA)
 - ❖ Restripe WB Bradley Boulevard west of the intersection, to provide two WB lanes for 45 ft west of the intersection, followed by a 170 foot taper.
 - ❖ Install “SINGLE LANE” sign with W5-3(1) “BEYOND SIGNAL” plate, W4-2mod “ALTERNATE MERGE (SYMBOL)” sign with W9-2(3)mod “ALTERNATE MERGE” plate and R4-9(1) “FORM SINGLE LANE” sign. Remove existing lane reduction signing.
 - Higher-cost alternate
 - ❖ Widen or restripe WB Bradley Boulevard west of the intersection, to provide two WB lanes for 400 feet west of the intersection, followed by a 100 foot taper.
 - ❖ Relocate W9-2(2)L “LANE ENDS” and W9-2(3)L “MERGE LEFT” signs approximately 275 feet to the west.
 - ❖ Relocate W4-2R sign approximately 200 feet to the west.
 - ❖ Relocate W9-2(4) “LANE ENDS MERGE LEFT” sign to far-side span.
 - Install overlap phasing for NB right-turning vehicles along Goldsboro Road. Several of these vehicles turn during the WB left-turn phase, and are currently required to stop first. Installation of overlap phasing would reduce delay and queuing for these vehicles.
 - Install exclusive phasing for the WB left-turn movement per MSHA requirements. Doing so would reduce the likelihood of left-turn crashes for this movement, although it will increase the likelihood of WB queues blocking the Bradley Boulevard at Glenbrook Road intersection.
 - Extend NB left-turn lane along Goldsboro Road to 175 feet (See Table 11).
 - The Bradley Boulevard WB improvements will include a minimum of a 5’ on-road bikeable shoulder through the intersection and a shared use path or sidewalk which will continue to Glenbrook Road.
 - The Bradley Boulevard EB on-road bikeable shoulder that will run along the south side of Bradley Boulevard will tie into and begin sharing the right lane of Bradley Boulevard just west of Goldsboro Road. This lane is the outer of three through lanes on Bradley Boulevard beginning at this location and continuing east.

Traffic Study

APPENDIX A

Radar Speed Distributions

Radar Speed Study Quantitative Summary

Description:

Route: Bradley Blvd
 Direction: Westbound
 Location: Wilson Lane
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 10:50 - 11:25 AM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 36 mph
 Modal Speed = 31, 33, 35 mph
 Mean Speed = 32.9 mph
 10 mph Pace = 29 - 38 mph
 % in pace = 88%
 % Over Speed Limit = 74%

Vehicle Classification:

Passenger Cars: 98%
 Trucks: 2%
 Buses: 0%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26	1	1	2%	2%
27	2	3	3%	5%
28	2	5	3%	9%
29	5	10	9%	17%
30	5	15	9%	26%
31	7	22	12%	38%
32	5	27	9%	47%
33	7	34	12%	59%
34	5	39	9%	67%
35	7	46	12%	79%
36	4	50	7%	86%
37	2	52	3%	90%
38	4	56	7%	97%
39		56	0%	97%
40	1	57	2%	98%
41		57	0%	98%
42		57	0%	98%
43	1	58	2%	100%
44			0%	100%
45			0%	100%
46			0%	100%
47			0%	100%
48			0%	100%
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				

Radar Speed Study Quantitative Summary

Description:

Route: Bradley Blvd
 Direction: Eastbound
 Location: Wilson Lane
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 10:50 - 11:25 AM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 37 mph
 Modal Speed = 32, 35 mph
 Mean Speed = 33.3 mph
 10 mph Pace = 28 - 37 mph
 % in pace = 85%
 % Over Speed Limit = 78%

Vehicle Classification:

Passenger Cars: 92%
 Trucks: 6%
 Buses: 2%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26	1	1	1%	1%
27	4	5	4%	6%
28	4	9	4%	10%
29	4	13	4%	15%
30	7	20	8%	22%
31	9	29	10%	33%
32	10	39	11%	44%
33	6	45	7%	51%
34	8	53	9%	60%
35	10	63	11%	71%
36	9	72	10%	81%
37	9	81	10%	91%
38	2	83	2%	93%
39	4	87	4%	98%
40	2	89	2%	100%
41			0%	100%
42			0%	100%
43			0%	100%
44			0%	100%
45			0%	100%
46			0%	100%
47			0%	100%
48			0%	100%
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				

Radar Speed Study **Quantitative Summary**

Description:

Route: Bradley Blvd
 Direction: Westbound
 Location: Brite Drive
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 12:25 - 12:55 PM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 37 mph
 Modal Speed = 35 mph
 Mean Speed = 33.8 mph
 10 mph Pace = 29 - 38 mph
 % in pace = 88%
 % Over Speed Limit = 80%

Vehicle Classification:

Passenger Cars: 97%
 Trucks: 3%
 Buses: 0%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26			0%	0%
27	2	2	3%	3%
28	2	4	3%	5%
29	3	7	4%	9%
30	7	14	9%	19%
31	7	21	9%	28%
32	8	29	11%	39%
33	7	36	9%	48%
34	9	45	12%	60%
35	10	55	13%	73%
36	5	60	7%	80%
37	5	65	7%	87%
38	5	70	7%	93%
39	2	72	3%	96%
40	1	73	1%	97%
41		73	0%	97%
42	1	74	1%	99%
43		74	0%	99%
44		74	0%	99%
45		74	0%	99%
46		74	0%	99%
47		74	0%	99%
48		74	0%	99%
49		74	0%	99%
50		74	0%	99%
51		74	0%	99%
52	1	75	1%	100%
53				
54				
55				
56				
57				
58				

Radar Speed Study Quantitative Summary

Description:

Route: Bradley Blvd
 Direction: Eastbound
 Location: Brite Drive
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 12:25 - 12:55 PM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 38 mph
 Modal Speed = 34 mph
 Mean Speed = 34.7 mph
 10 mph Pace = 30 - 39 mph
 % in pace = 82%
 % Over Speed Limit = 84%

Vehicle Classification:

Passenger Cars: 98%
 Trucks: 1%
 Buses: 1%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26	1	1	1%	1%
27	1	2	1%	2%
28	1	3	1%	4%
29	3	6	4%	7%
30	6	12	7%	15%
31	5	17	6%	21%
32	8	25	10%	30%
33	8	33	10%	40%
34	11	44	13%	54%
35	9	53	11%	65%
36	9	62	11%	76%
37	5	67	6%	82%
38	3	70	4%	85%
39	3	73	4%	89%
40	1	74	1%	90%
41	2	76	2%	93%
42	2	78	2%	95%
43		78	0%	95%
44	1	79	1%	96%
45		79	0%	96%
46	1	80	1%	98%
47		80	0%	98%
48	1	81	1%	99%
49	1	82	1%	100%
50				
51				
52				
53				
54				
55				
56				
57				
58				

Radar Speed Study Quantitative Summary

Description:

Route: Bradley Blvd
 Direction: Westbound
 Location: Goldsboro Road
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 11:30 AM - 12:20 PM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 39 mph
 Modal Speed = 35 mph
 Mean Speed = 34.5 mph
 10 mph Pace = 29 - 38 mph
 % in pace = 74%
 % Over Speed Limit = 79%

Vehicle Classification:

Passenger Cars: 97%
 Trucks: 2%
 Buses: 1%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26			0%	0%
27	2	2	2%	2%
28	4	6	5%	7%
29	5	11	6%	13%
30	6	17	7%	20%
31	7	24	8%	29%
32	7	31	8%	37%
33	7	38	8%	45%
34	8	46	10%	55%
35	10	56	12%	67%
36	4	60	5%	71%
37	3	63	4%	75%
38	5	68	6%	81%
39	4	72	5%	86%
40	3	75	4%	89%
41	1	76	1%	90%
42	3	79	4%	94%
43	2	81	2%	96%
44	1	82	1%	98%
45	1	83	1%	99%
46		83	0%	99%
47		83	0%	99%
48		83	0%	99%
49		83	0%	99%
50		83	0%	99%
51		83	0%	99%
52		83	0%	99%
53	1	84	1%	100%
54				
55				
56				
57				
58				

Radar Speed Study

Quantitative Summary

Description:

Route: Bradley Blvd

Direction: Eastbound

Location: Goldsboro Road

County: Montgomery

Posted Speed Limit: 30 MPH

Date: 23-Apr-09

Time: 11:30 AM - 12:20 PM

Weather: Sunny

WRA W.O.#: 31681-002

Recorder(s): RK

Results:

85th %-ile Speed = 34 mph

Modal Speed = 32 mph

Mean Speed = 31.0 mph

10 mph Pace = 26 - 35 mph

% in pace = 87%

% Over Speed Limit = 58%

Vehicle Classification:

Passenger Cars: 95%

Trucks: 5%

Buses: 0%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24	1	1	2%	2%
25	2	3	3%	5%
26	2	5	3%	8%
27	5	10	8%	17%
28	4	14	7%	23%
29	5	19	8%	32%
30	6	25	10%	42%
31	7	32	12%	53%
32	11	43	18%	72%
33	5	48	8%	80%
34	3	51	5%	85%
35	4	55	7%	92%
36	1	56	2%	93%
37	2	58	3%	97%
38	1	59	2%	98%
39	1	60	2%	100%
40		60	0%	100%
41		60	0%	100%
42		60	0%	100%
43		60	0%	100%
44		60	0%	100%
45		60	0%	100%
46		60	0%	100%
47		60	0%	100%
48		60	0%	100%
49		60	0%	100%
50				
51				
52				
53				
54				
55				
56				
57				
58				

Traffic Study

APPENDIX B

Queuing Analysis



Whitman, Requardt, and Associates, LLP

QUEUING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Goldsboro Rd.
Montgomery County, Maryland

APPROACH: EB Bradley Blvd. Thrus

TIME: 7:45 - 8:45 AM

E. Hershman

Thursday, April 23, 2009

Clear

31681-002

TIME	CYCLE	Queue at Beginning of Green	Queuing added at Beginning of Green	# Cleared during Green	# Cleared during Yellow/All Red	# Not Cleared
7:45 AM	1	3		3		
	2	6		6		
	3	4		4		
	4	7		7		
	5	8		8		
	6	9		9		
	7	4		4		
	8	8		8		
	9	3		3		
	10	6		6		
	11	8		8		
	12	3		3		
	13	10		10		
	14	4		4		
	15	7		7		
	16	8		8		
	17	5		5		
	18	7		7		
	19	6		6		
	20	7		7		
	21	5		5		
	22	8		8		
	23	5		5		
	24	7		7		
	25	9		9		
	26	6		6		
	27	5		5		
	28	6		6		
	29	5		5		
	30	4		4		

	31	9		9		
	32	8		8		
	33	7		7		
	34	6		6		
	35	6		6		
8:45 AM	36	5		5		
PM Peak Hour Totals	36 cycles	224	0	224	0	0

Longest Queue = 10
Average Queue = 6.2



Whitman, Requardt, and Associates, LLP

QUEUEING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Goldsboro Rd.
Montgomery County, Maryland

APPROACH: WB Bradley Blvd. Lefts

TIME: 7:45 - 8:45 AM

Recorder: E. Hershman

Date: Thursday, April 23, 2009

Weather: Clear

J.O.#/W.O.#: 31681-002

TIME	CYCLE	Queue at Beginning of Green	# Cleared during Green			# Cleared during Yellow/All Red			Total # Cleared	# Not Cleared
			Exclusive Phase	Permissive Phase	Total	Exclusive Phase	Permissive Phase	Total		
7:45 AM	1	1	1		1			0	1	
	2	4	4		4			0	4	
	3	2	2		2			0	2	
	4	5	5		5			0	5	
	5	4	4		4			0	4	
	6	8	7		7	1		1	8	
	7	2	2		2			0	2	
	8	5	5		5			0	5	
	9	1	1		1			0	1	
	10	1	1		1			0	1	
	11	6	6		6			0	6	
	12	5	5		5			0	5	
	13	3	3		3			0	3	
	14	6	6		6			0	6	
	15	10	7		7	3		3	10	
	16	6	6		6			0	6	
	17	12	7	3	10	2		2	12	
	18	12	7		7	2		2	9	3
	19	8	7		7	1		1	8	
	20	7	6		6	1		1	7	
	21	0	0		0			0	0	
	22	4	4		4			0	4	
	23	3	3		3			0	3	
	24	11	8	1	9	2		2	11	
	25	13	8	3	11	2		2	13	
	26	12	7	3	10	2		2	12	
	27	3	3		3			0	3	
	28	6	6		6			0	6	
	29	13	7	1	8	2	1	3	11	
	30	6	6		6			0	6	
	31	4	4		4			0	4	
	32	2	2		2			0	2	

	33	4	4	4		0	4			
	34	13	8	2	10	1	1	11		
	35	11	7		7		0	7		
8:45 AM	36	15	7	5	12	3	3	15		
PM Peak Hour Totals	36 cycles	228	176	18	194	22	1	23	217	3
Average per cycle =		6.3	4.9	0.5	5.4	0.6	0.0	0.6	6.0	0.1

% Lefts Cleared: 81% 8% 89% 10% 1% 11% 100%

Longest Queue = 15 Vehicles
Average Queue = 6.3 Vehicles



Whitman, Requardt, and Associates, LLP

QUEUING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Wilson Lane
Montgomery County, Maryland

APPROACH: EB Bradley Blvd. LTR

TIME: 7:45 - 8:45 AM

R. Klasen

Thursday, April 23, 2009

Clear

31681-002

TIME	CYCLE	Queue at Beginning of Green	Queueing added at Beginning of Green	# Cleared during Green	# Cleared during Yellow/All Red	# Not Cleared
7:45 AM	1	>20		24	0	
	2	4		17	0	
	3	>20		33	2	
	4	>20		30	1	
	5	>20		32	0	
	6	>20		27	2	
	7	>20		26	1	
	8	>20		8	1	
	9	>20		26	1	
	10	>20		23	0	
	11	>20		24	2	
	12	24		28	0	
	13	>20		30	1	
	14	>20		28	1	
	15	>20		26	2	
	16	>20		23	1	
	17	>20		31	2	
	18	19		22	0	
	19	0		31	1	
	20	21		29	1	
	21	11		22	0	
	22	>20		26	1	
	23	>20		34	0	
	24	>20		25	1	
	25	>20		29	0	
	26	17		30	0	
	27	>20		29	2	
	28	>20		30	2	
	29	22		24	2	
8:45 AM	30	>20		32	1	

PM Peak Hour Totals	30 cycles	118	0	799	28	0

Longest Queue = >20

Average Queue = >20



Whitman, Requardt, and Associates, LLP

QUEUING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Goldsboro Rd.
Montgomery County, Maryland
APPROACH: EB Bradley Blvd. Thrus
TIME: 5:30 - 6:30 PM

E. Hershman
Thursday, April 23, 2009
Clear
31681-002

TIME	CYCLE	Queue at Beginning of Green	Queuing added at Beginning of Green	# Cleared during Green	# Cleared during Yellow/All Red	# Not Cleared
5:30 PM	1	6		6		
	2	6		6		
	3	3		3		
	4	2		2		
	5	6		6		
	6	8		8		
	7	6		6		
	8	4		4		
	9	4		4		
	10	3		3		
	11	6		6		
	12	5		5		
	13	4		4		
	14	2		2		
	15	5		5		
	16	7		7		
	17	7		7		
	18	5		5		
	19	3		3		
	20	4		4		
	21	3		3		
	22	2		2		
	23	5		5		
	24	3		3		
	25	5		5		
	26	5		5		
	27	4		4		
	28	3		3		
	29	5		5		
	30	5		5		

	31	5		5		
	32	0		0		
	33	4		4		
	34	2		2		
	35	7		7		
6:30 PM	36	6		6		
PM Peak Hour Totals	36 cycles	160	0	160	0	0

Longest Queue = 8

Average Queue = 4.4



Whitman, Requardt, and Associates, LLP

QUEUEING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Goldsboro Rd.
Montgomery County, Maryland
 APPROACH: WB Bradley Blvd. Lefts
 TIME: 5:30 - 6:30 PM

Recorder: E. Hershman
 Date: Thursday, April 23, 2009
 Weather: Clear
 J.O.#/W.O.#: 31681-002

TIME	CYCLE	Queue at Beginning of Green	# Cleared during Green			# Cleared during Yellow/All Red			Total # Cleared	# Not Cleared
			Exclusive Phase	Permissive Phase	Total	Exclusive Phase	Permissive Phase	Total		
5:30 PM	1	7	7		7			0	7	
	2	4	4		4			0	4	
	3	11	11		11			0	11	
	4	13	13		13			0	13	
	5	14	14		14			0	14	
	6	12	12		12			0	12	
	7	4	4		4			0	4	
	8	3	3		3			0	3	
	9	10	10		10			0	10	
	10	13	13		13			0	13	
	11	12	12		12			0	12	
	12	8	8		8			0	8	
	13	13	13		13			0	13	
	14	8	8		8			0	8	
	15	15	15		15			0	15	
	16	4	4		4			0	4	
	17	3	3		3			0	3	
	18	18	16		16	2		2	18	
	19	12	12		12			0	12	
	20	7	7		7			0	7	
	21	4	4		4			0	4	
	22	9	9		9			0	9	
	23	7	7		7			0	7	
	24	7	7		7			0	7	
	25	12	12		12			0	12	
	26	7	7		7			0	7	
	27	9	9		9			0	9	
	28	8	8		8			0	8	
	29	11	11		11			0	11	
	30	6	6		6			0	6	
	31	7	7		7			0	7	
	32	4	4		4			0	4	

	33	6	6	6		0	6			
	34	10	10	10		0	10			
	35	12	12	12		0	12			
6:30 PM	36	8	8	8		0	8			
PM Peak Hour Totals	36 cycles	318	316	0	316	2	0	2	318	0
Average per cycle =		8.8	8.8	0.0	8.8	0.1	0.0	0.1	8.8	0.0

% Lefts Cleared: 99% 0% 99% 1% 0% 1% 100%

Longest Queue = 18 Vehicles
Average Queue = 8.8 Vehicles



Whitman, Requardt, and Associates, LLP

QUEUING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Wilson Lane
Montgomery County, Maryland

APPROACH: WB Bradley Blvd. LTR

TIME: 5:30 - 6:30 PM

R. Klasen

Thursday, April 23, 2009

Clear

31681-002

TIME	CYCLE	Queue at Beginning of Green	Queuing added at Beginning of Green	# Cleared during Green	# Cleared during Yellow/All Red	# Not Cleared
5:30 PM	1	>20		29	2	
	2	>20		24	2	
	3	>20		30	1	
	4	>20		17	1	>2
	5	>20		29	0	
	6	>20		22	1	
	7	>20		28	0	
	8	>20		26	2	
	9	>20		23	2	
	10	>20		23	2	
	11	>20		26	2	
	12	>20		32	3	
	13	>20		11	2	>7
	14	>20		30	2	
	15	>20		26	2	
	16	>20		27	2	
	17	>20		31	1	
	18	>20		33	0	
	19	>20		26	2	
	20	>20		30	1	
	21	>20		27	2	
	22	>20		21	3	
	23	>20		33	0	
	24	>20		23	0	
	25	>20		34	0	
	26	>20		31	1	
	27	>20		27	0	
	28	>20		26	2	
	29	>20		24	0	
8:45 AM	30	>20		28	0	

PM Peak Hour Totals	30 cycles	0	0	797	38	0

Longest Queue = >20

Average Queue = >20

Traffic Study

APPENDIX C

Turning Movement Count Volumes

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Whitman, Requardt & Associates, LLP

Location: Bethesda, MD
Intersection: Bradley Blvd / MD614
Date: Tuesday, April 21, 2009
Counter: ET / JT

File Name : EH0421-2
Site Code : 00000000
Start Date : 4/21/2009
Page No : 1

Groups Printed- Cars - Heavy Vehicles - Right Turn On Red

	MD 191 (Bradley Blvd.) From East				MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
06:00 AM	12	11	0	23	19	1	0	20	0	25	0	25	68
06:15 AM	12	18	0	30	44	1	1	46	2	29	0	31	107
06:30 AM	18	33	0	51	47	3	2	52	5	40	0	45	148
06:45 AM	44	37	0	81	64	6	5	75	5	79	0	84	240
Total	86	99	0	185	174	11	8	193	12	173	0	185	563
07:00 AM	44	50	0	94	85	6	2	93	11	112	0	123	310
07:15 AM	59	60	0	119	100	8	2	110	16	151	0	167	396
07:30 AM	79	62	0	141	106	11	1	118	22	229	0	251	510
07:45 AM	137	99	0	236	146	15	3	164	25	246	0	271	671
Total	319	271	0	590	437	40	8	485	74	738	0	812	1887
08:00 AM	101	78	0	179	171	11	3	185	19	238	0	257	621
08:15 AM	92	76	0	168	176	21	4	201	25	221	0	246	615
08:30 AM	88	88	0	176	189	25	2	216	16	252	0	268	660
08:45 AM	97	90	0	187	182	26	0	208	13	224	0	237	632
Total	378	332	0	710	718	83	9	810	73	935	0	1008	2528
09:00 AM	80	61	0	141	172	15	2	189	28	185	0	213	543
09:15 AM	74	67	0	141	171	10	1	182	32	205	0	237	560
09:30 AM	75	65	0	140	159	16	3	178	25	146	0	171	489
09:45 AM	63	62	1	126	145	11	2	158	20	146	0	166	450
Total	292	255	1	548	647	52	8	707	105	682	0	787	2042
10:00 AM	63	68	0	131	98	14	1	113	12	124	0	136	380
10:15 AM	69	65	0	134	96	11	0	107	13	115	0	128	369
10:30 AM	83	61	0	144	72	7	1	80	7	98	0	105	329
10:45 AM	70	57	0	127	96	15	0	111	18	112	0	130	368
Total	285	251	0	536	362	47	2	411	50	449	0	499	1446
11:00 AM	77	53	0	130	89	8	5	102	13	104	0	117	349
11:15 AM	86	86	0	172	59	16	1	76	21	80	0	101	349
11:30 AM	100	83	0	183	104	18	2	124	16	98	0	114	421
11:45 AM	103	91	0	194	97	11	0	108	22	97	0	119	421
Total	366	313	0	679	349	53	8	410	72	379	0	451	1540
12:00 PM	101	83	1	185	95	14	2	111	21	104	0	125	421
12:15 PM	92	65	0	157	73	14	0	87	15	98	0	113	357
12:30 PM	114	86	0	200	58	14	0	72	15	100	0	115	387
12:45 PM	112	80	0	192	81	18	1	100	16	81	0	97	389
Total	419	314	1	734	307	60	3	370	67	383	0	450	1554
01:00 PM	97	73	0	170	90	13	2	105	6	91	0	97	372
01:15 PM	86	78	0	164	85	20	0	105	14	87	0	101	370
01:30 PM	109	92	0	201	66	12	0	78	14	106	0	120	399
01:45 PM	107	85	0	192	89	14	1	104	27	123	0	150	446
Total	399	328	0	727	330	59	3	392	61	407	0	468	1587
02:00 PM	117	107	0	224	76	20	0	96	13	81	0	94	414
02:15 PM	107	85	0	192	70	21	0	91	17	98	0	115	398
02:30 PM	141	98	0	239	88	24	0	112	12	96	0	108	459
02:45 PM	123	86	0	209	93	22	1	116	12	121	0	133	458
Total	488	376	0	864	327	87	1	415	54	396	0	450	1729
03:00 PM	143	92	0	235	84	26	0	110	16	118	0	134	479
03:15 PM	130	108	0	238	96	26	4	126	14	137	0	151	515
03:30 PM	153	94	0	247	93	43	0	136	25	129	0	154	537
03:45 PM	155	107	0	262	114	22	2	138	10	130	0	140	540
Total	581	401	0	982	387	117	6	510	65	514	0	579	2071

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Whitman, Requardt & Associates, LLP

Location: Bethesda, MD
Intersection: Bradley Blvd / MD614
Date: Tuesday, April 21, 2009
Counter: ET / JT

File Name : EH0421-2
Site Code : 00000000
Start Date : 4/21/2009
Page No : 2

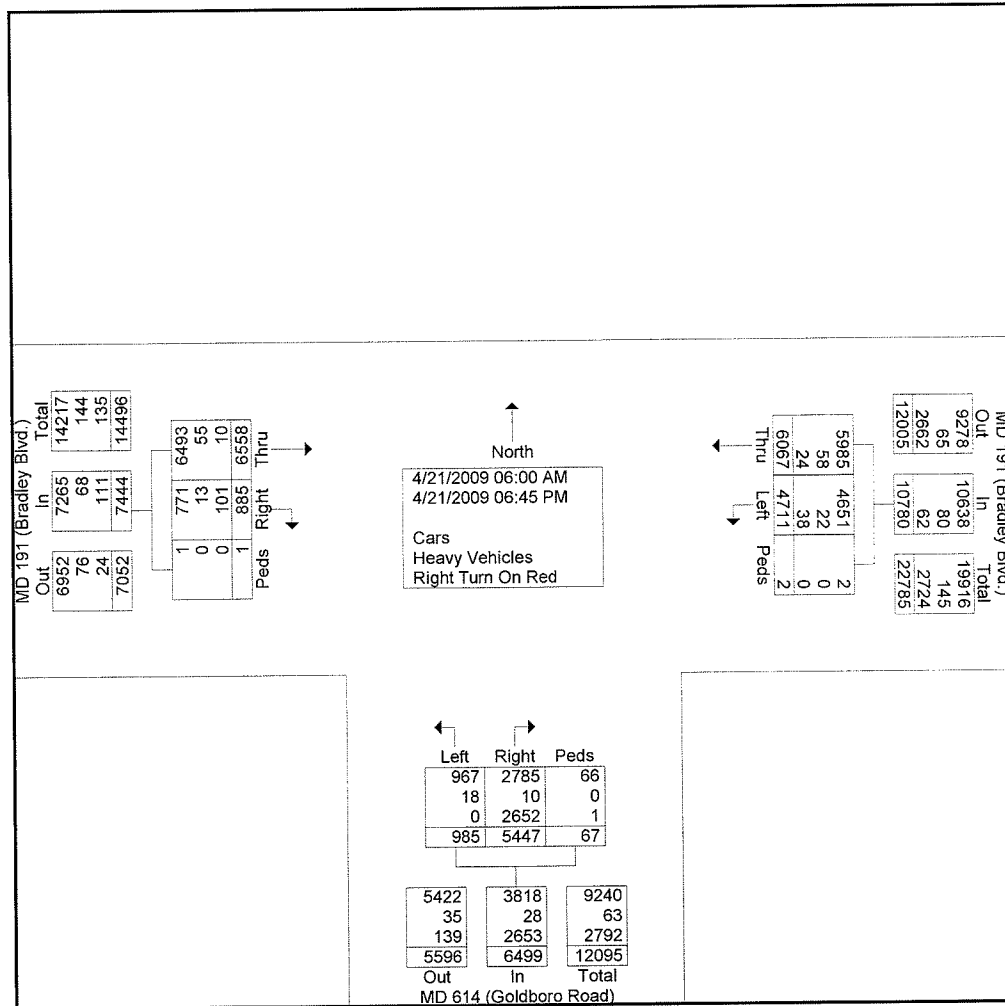
Groups Printed- Cars - Heavy Vehicles - Right Turn On Red

Start Time	MD 191 (Bradley Blvd.) From East				MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
04:00 PM	168	97	0	265	94	29	0	123	19	138	0	157	545
04:15 PM	162	123	0	285	125	25	1	151	19	127	0	146	582
04:30 PM	181	137	0	318	109	24	3	136	20	115	0	135	589
04:45 PM	173	128	0	301	111	42	0	153	19	117	0	136	590
Total	684	485	0	1169	439	120	4	563	77	497	0	574	2306
05:00 PM	219	143	0	362	115	33	2	150	21	115	0	136	648
05:15 PM	204	151	0	355	124	37	2	163	23	127	1	151	669
05:30 PM	231	171	0	402	132	35	0	167	19	107	0	126	695
05:45 PM	271	170	0	441	155	35	1	191	24	133	0	157	789
Total	925	635	0	1560	526	140	5	671	87	482	1	570	2801
06:00 PM	247	164	0	411	119	31	0	150	24	142	0	166	727
06:15 PM	240	183	0	423	103	32	1	136	25	113	0	138	697
06:30 PM	193	163	0	356	115	32	0	147	14	144	0	158	661
06:45 PM	165	141	0	306	107	21	1	129	25	124	0	149	584
Total	845	651	0	1496	444	116	2	562	88	523	0	611	2669
Grand Total	6067	4711	2	10780	5447	985	67	6499	885	6558	1	7444	24723
Apprch %	56.3	43.7	0		83.8	15.2	1		11.9	88.1	0		
Total %	24.5	19.1	0	43.6	22	4	0.3	26.3	3.6	26.5	0	30.1	
Cars	5985	4651	2	10638	2785	967	66	3818	771	6493	1	7265	21721
% Cars	98.6	98.7	100	98.7	51.1	98.2	98.5	58.7	87.1	99	100	97.6	87.9
Heavy Vehicles	58	22	0	80	10	18	0	28	13	55	0	68	176
% Heavy Vehicles	1	0.5	0	0.7	0.2	1.8	0	0.4	1.5	0.8	0	0.9	0.7
Right Turn On Red	24	38	0	62	2652	0	1	2653	101	10	0	111	2826
% Right Turn On Red	0.4	0.8	0	0.6	48.7	0	1.5	40.8	11.4	0.2	0	1.5	11.4

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Location: Bethesda, MD
Intersection: Bradley Blvd / MD614
Date: Tuesday, April 21, 2009
Counter: ET / JT

File Name : EH0421-2
Site Code : 00000000
Start Date : 4/21/2009
Page No : 3

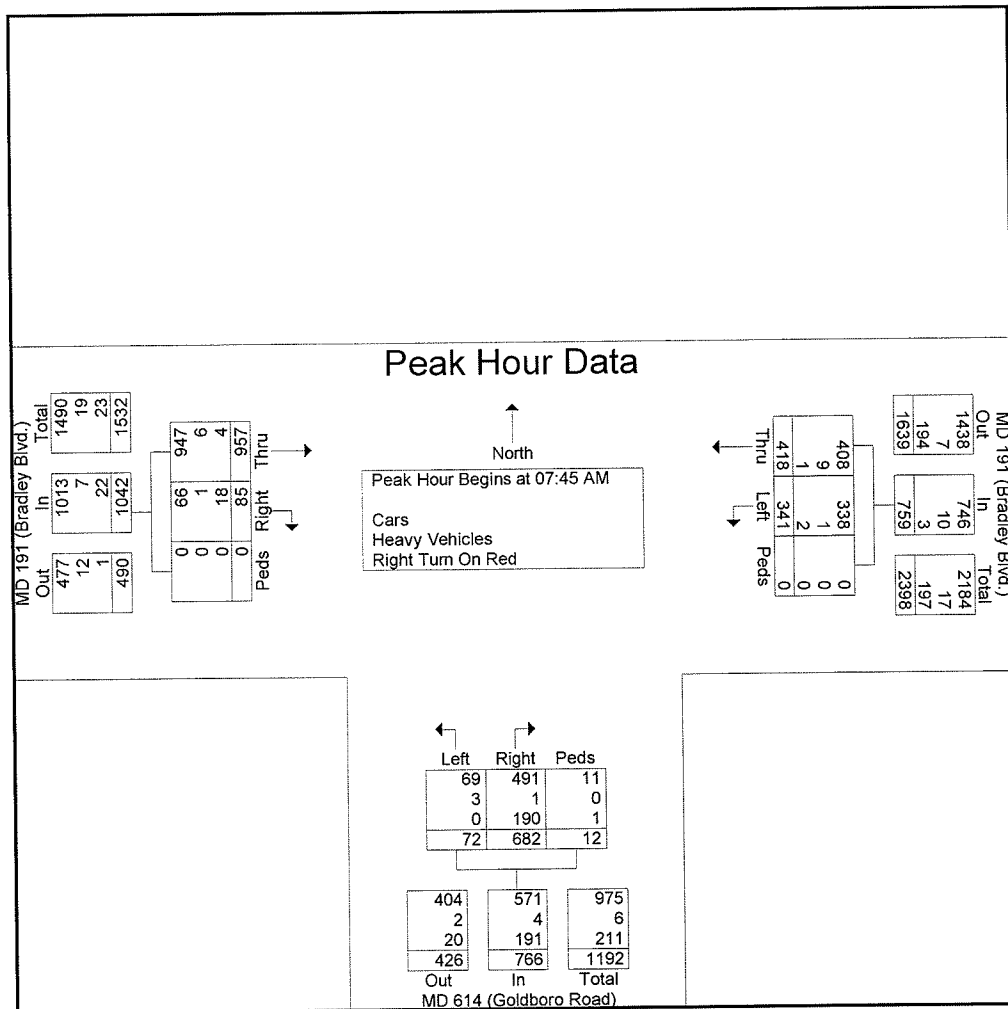


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Location: Bethesda, MD
Intersection: Bradley Blvd / MD614
Date: Tuesday, April 21, 2009
Counter: ET / JT

File Name : EH0421-2
Site Code : 00000000
Start Date : 4/21/2009
Page No : 4

	MD 191 (Bradley Blvd.) From East				MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	137	99	0	236	146	15	3	164	25	246	0	271	671
08:00 AM	101	78	0	179	171	11	3	185	19	238	0	257	621
08:15 AM	92	76	0	168	176	21	4	201	25	221	0	246	615
08:30 AM	88	88	0	176	189	25	2	216	16	252	0	268	660
Total Volume	418	341	0	759	682	72	12	766	85	957	0	1042	2567
% App. Total	55.1	44.9	0		89	9.4	1.6		8.2	91.8	0		
PHF	.763	.861	.000	.804	.902	.720	.750	.887	.850	.949	.000	.961	.956
Cars	408	338	0	746	491	69	11	571	66	947	0	1013	2330
% Cars	97.6	99.1	0	98.3	72.0	95.8	91.7	74.5	77.6	99.0	0	97.2	90.8
Heavy Vehicles	9	1	0	10	1	3	0	4	1	6	0	7	21
% Heavy Vehicles	2.2	0.3	0	1.3	0.1	4.2	0	0.5	1.2	0.6	0	0.7	0.8
Right Turn On Red	1	2	0	3	190	0	1	191	18	4	0	22	216
% Right Turn On Red	0.2	0.6	0	0.4	27.9	0	8.3	24.9	21.2	0.4	0	2.1	8.4

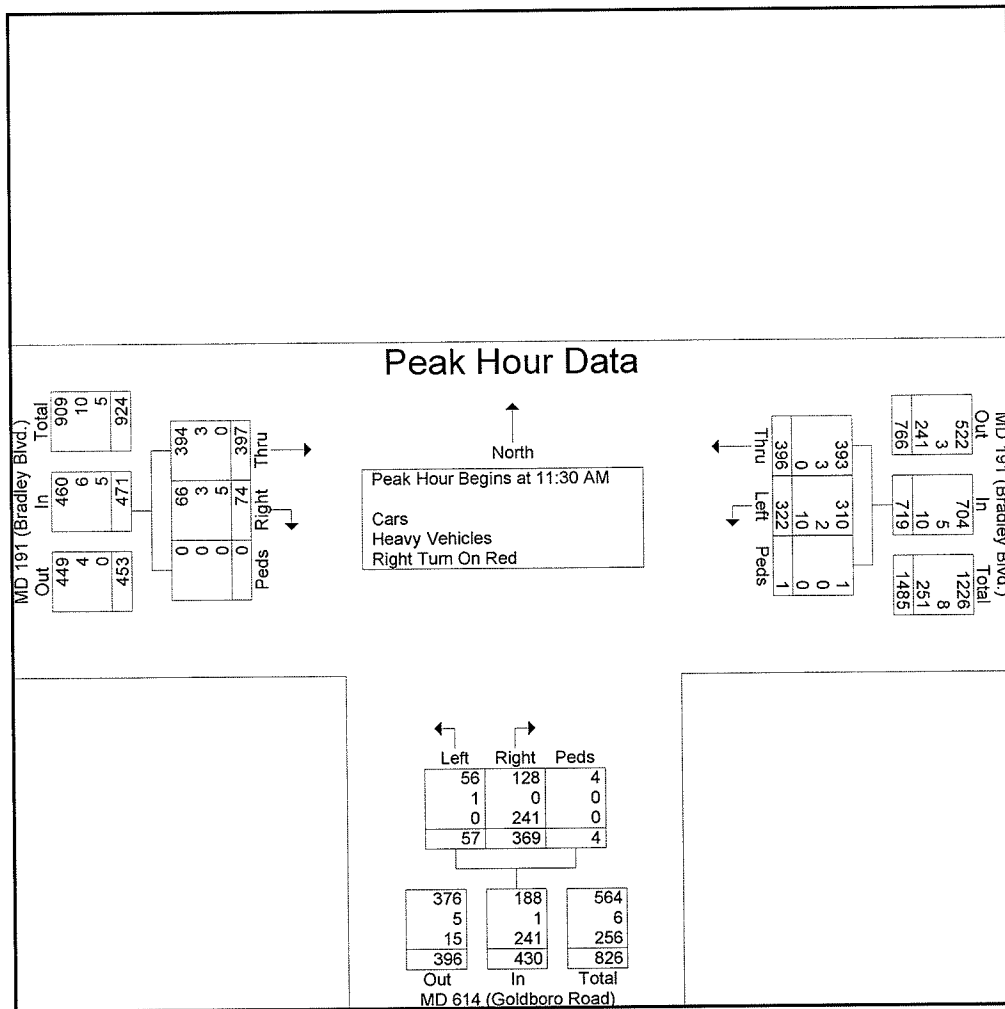


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Whitman, Requardt & Associates, LLP

Location: Bethesda, MD
Intersection: Bradley Blvd / MD614
Date: Tuesday, April 21, 2009
Counter: ET / JT

File Name : EH0421-2
Site Code : 00000000
Start Date : 4/21/2009
Page No : 5

MD 191 (Bradley Blvd.) From East					MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	100	83	0	183	104	18	2	124	16	98	0	114	421
11:45 AM	103	91	0	194	97	11	0	108	22	97	0	119	421
12:00 PM	101	83	1	185	95	14	2	111	21	104	0	125	421
12:15 PM	92	65	0	157	73	14	0	87	15	98	0	113	357
Total Volume	396	322	1	719	369	57	4	430	74	397	0	471	1620
% App. Total	55.1	44.8	0.1		85.8	13.3	0.9		15.7	84.3	0		
PHF	.961	.885	.250	.927	.887	.792	.500	.867	.841	.954	.000	.942	.962
Cars	393	310	1	704	128	56	4	188	66	394	0	460	1352
% Cars	99.2	96.3	100	97.9	34.7	98.2	100	43.7	89.2	99.2	0	97.7	83.5
Heavy Vehicles	3	2	0	5	0	1	0	1	3	3	0	6	12
% Heavy Vehicles	0.8	0.6	0	0.7	0	1.8	0	0.2	4.1	0.8	0	1.3	0.7
Right Turn On Red	0	10	0	10	241	0	0	241	5	0	0	5	256
% Right Turn On Red	0	3.1	0	1.4	65.3	0	0	56.0	6.8	0	0	1.1	15.8

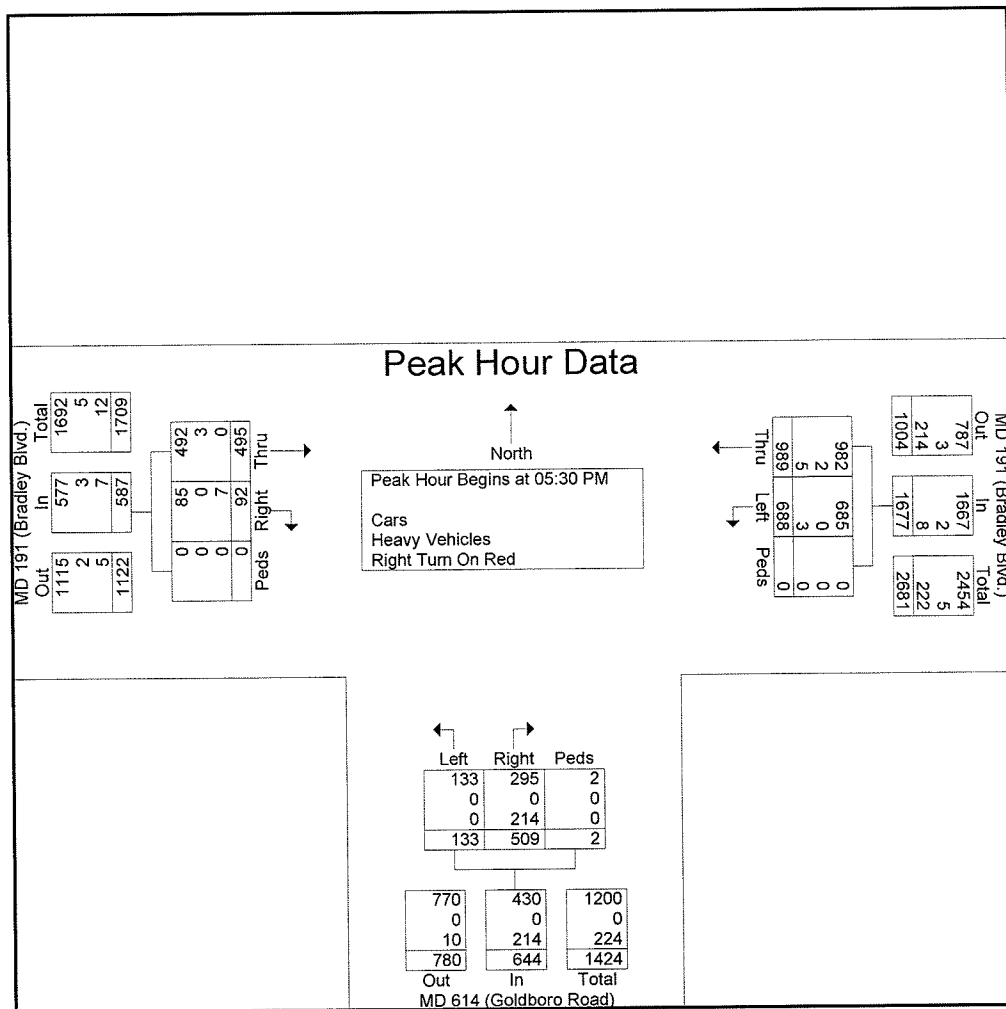


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Location: Bethesda, MD
Intersection: Bradley Blvd / MD614
Date: Tuesday, April 21, 2009
Counter: ET / JT

File Name : EH0421-2
Site Code : 00000000
Start Date : 4/21/2009
Page No : 6

	MD 191 (Bradley Blvd.) From East				MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:30 PM													
05:30 PM	231	171	0	402	132	35	0	167	19	107	0	126	695
05:45 PM	271	170	0	441	155	35	1	191	24	133	0	157	789
06:00 PM	247	164	0	411	119	31	0	150	24	142	0	166	727
06:15 PM	240	183	0	423	103	32	1	136	25	113	0	138	697
Total Volume	989	688	0	1677	509	133	2	644	92	495	0	587	2908
% App. Total	59	41	0		79	20.7	0.3		15.7	84.3	0		
PHF	.912	.940	.000	.951	.821	.950	.500	.843	.920	.871	.000	.884	.921
Cars	982	685	0	1667	295	133	2	430	85	492	0	577	2674
% Cars	99.3	99.6	0	99.4	58.0	100	100	66.8	92.4	99.4	0	98.3	92.0
Heavy Vehicles	2	0	0	2	0	0	0	0	0	3	0	3	5
% Heavy Vehicles	0.2	0	0	0.1	0	0	0	0	0	0.6	0	0.5	0.2
Right Turn On Red	5	3	0	8	214	0	0	214	7	0	0	7	229
% Right Turn On Red	0.5	0.4	0	0.5	42.0	0	0	33.2	7.6	0	0	1.2	7.9



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Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
Start Date : 4/23/2009
Page No : 1

Groups Printed- Cars - Heavy Vehicles/Bikes - RTOR

	RT 188 WILSON LA From North					RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	2	12	2	0	16	2	13	1	0	16	1	11	0	0	12	0	19	4	0	23	67
06:15 AM	1	10	1	1	13	1	12	2	1	16	3	5	0	1	9	0	24	5	0	29	67
06:30 AM	4	13	2	2	21	0	21	2	0	23	4	26	0	1	31	0	39	8	0	47	122
06:45 AM	8	27	2	0	37	1	32	3	2	38	4	38	0	3	45	1	73	14	0	88	208
Total	15	62	7	3	87	4	78	8	3	93	12	80	0	5	97	1	155	31	0	187	464
07:00 AM	4	48	2	0	54	0	34	6	4	44	4	58	4	2	68	3	99	19	0	121	287
07:15 AM	13	39	7	1	60	4	54	13	3	74	5	66	7	1	79	4	156	21	0	181	394
07:30 AM	17	45	10	0	72	3	89	7	3	102	9	70	6	1	86	3	164	18	0	185	445
07:45 AM	9	38	8	0	55	5	122	8	2	137	8	95	1	1	105	0	180	18	0	198	495
Total	43	170	27	1	241	12	299	34	12	357	26	289	18	5	338	10	599	76	0	685	1621
08:00 AM	12	36	9	3	60	6	92	12	1	111	27	100	6	0	133	2	175	31	2	210	514
08:15 AM	9	43	9	0	61	8	87	12	3	110	18	86	2	4	110	7	205	30	0	242	523
08:30 AM	17	36	7	3	63	20	91	6	5	122	12	105	10	0	127	2	203	31	0	236	548
08:45 AM	14	22	8	0	44	12	126	7	5	150	12	106	2	3	123	3	183	36	0	222	539
Total	52	137	33	6	228	46	396	37	14	493	69	397	20	7	493	14	766	128	2	910	2124
09:00 AM	14	54	15	0	83	7	93	11	2	113	17	137	4	0	158	1	199	16	0	216	570
09:15 AM	6	30	5	0	41	10	92	12	4	118	10	79	2	1	92	6	201	19	0	226	477
09:30 AM	7	23	9	3	42	4	68	6	2	80	11	78	3	1	93	5	142	21	0	168	383
09:45 AM	11	26	2	0	39	6	77	4	3	90	8	75	1	1	85	5	120	21	0	146	360
Total	38	133	31	3	205	27	330	33	11	401	46	369	10	3	428	17	662	77	0	756	1790
10:00 AM	10	25	9	0	44	6	54	6	2	68	11	61	0	0	72	2	99	21	0	122	306
10:15 AM	4	45	13	1	63	11	83	9	0	103	9	73	1	0	83	3	109	13	0	125	374
10:30 AM	7	36	6	0	49	8	53	10	1	72	14	43	2	1	60	4	106	17	0	127	308
10:45 AM	13	47	7	0	67	4	93	2	1	100	10	59	2	2	73	8	101	9	4	122	362
Total	34	153	35	1	223	29	283	27	4	343	44	236	5	3	288	17	415	60	4	496	1350
11:00 AM	7	29	7	0	43	4	85	11	0	100	6	49	0	1	56	5	88	12	0	105	304
11:15 AM	3	23	3	0	29	11	84	8	0	103	11	52	0	0	63	3	94	14	0	111	306
11:30 AM	11	30	7	0	48	6	87	5	3	101	8	51	3	1	63	6	103	17	0	126	338
11:45 AM	10	33	7	1	51	11	93	14	0	118	14	43	3	0	60	3	81	11	0	95	324
Total	31	115	24	1	171	32	349	38	3	422	39	195	6	2	242	17	366	54	0	437	1272
12:00 PM	9	43	4	0	56	6	87	12	5	110	12	48	8	0	68	5	91	17	0	113	347
12:15 PM	18	36	6	1	61	9	91	14	1	115	9	41	1	2	53	5	98	12	0	115	344
12:30 PM	12	32	6	0	50	9	94	12	25	140	13	26	3	1	43	3	97	13	0	113	346
12:45 PM	14	37	6	0	57	10	101	8	2	121	10	43	1	0	54	1	95	16	0	112	344
Total	53	148	22	1	224	34	373	46	33	486	44	158	13	3	218	14	381	58	0	453	1381
01:00 PM	8	39	2	0	49	5	102	9	1	117	14	50	3	0	67	1	102	8	0	111	344
01:15 PM	7	32	6	2	47	8	84	16	0	108	10	41	1	0	52	1	74	13	0	88	295
01:30 PM	10	59	3	3	75	7	90	8	6	111	9	55	3	2	69	2	88	10	0	100	355
01:45 PM	10	53	4	0	67	12	105	10	4	131	11	43	0	2	56	4	77	10	2	93	347
Total	35	183	15	5	238	32	381	43	11	467	44	189	7	4	244	8	341	41	2	392	1341
02:00 PM	17	55	5	0	77	9	96	11	0	116	11	57	4	0	72	5	92	12	0	109	374
02:15 PM	13	64	7	0	84	4	103	15	3	125	17	46	3	0	66	1	81	18	0	100	375
02:30 PM	18	48	10	0	76	10	102	20	11	143	11	37	8	0	56	2	89	21	0	112	387
02:45 PM	13	67	4	0	84	10	127	18	0	155	8	62	13	1	84	9	108	32	0	149	472
Total	61	234	26	0	321	33	428	64	14	539	47	202	28	1	278	17	370	83	0	470	1608
03:00 PM	17	47	6	0	70	11	190	10	3	214	7	64	19	0	90	2	106	20	0	128	502
03:15 PM	15	47	7	1	70	6	167	19	0	192	13	71	14	0	98	3	129	32	1	165	525
03:30 PM	5	69	6	0	80	6	140	18	2	166	12	69	10	1	92	12	117	29	0	158	496
03:45 PM	15	75	2	0	92	7	158	23	2	190	17	63	7	0	87	5	119	17	0	141	510
Total	52	238	21	1	312	30	655	70	7	762	49	267	50	1	367	22	471	98	1	592	2033

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Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
Start Date : 4/23/2009
Page No : 2

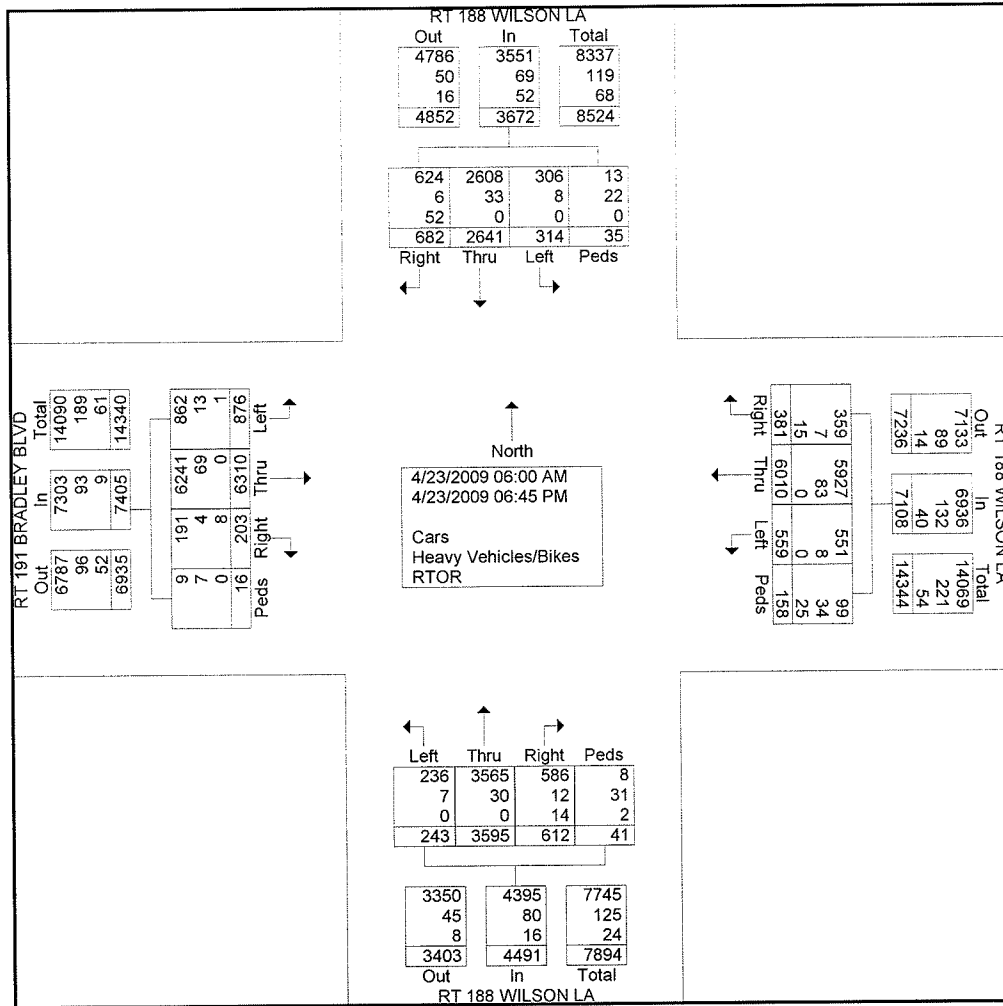
Groups Printed- Cars - Heavy Vehicles/Bikes - RTOR

Start Time	RT 188 WILSON LA From North					RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	19	62	10	0	91	13	182	15	2	212	16	73	7	1	97	5	135	11	0	151	551
04:15 PM	22	69	5	0	96	13	189	19	1	222	17	67	4	0	88	7	115	12	0	134	540
04:30 PM	22	63	5	0	90	7	170	15	5	197	17	88	5	0	110	7	122	13	0	142	539
04:45 PM	22	91	7	0	120	10	215	14	2	241	15	120	8	1	144	4	114	12	0	130	635
Total	85	285	27	0	397	43	756	63	10	872	65	348	24	2	439	23	486	48	0	557	2265
05:00 PM	16	80	8	0	104	11	208	16	7	242	17	139	7	0	163	2	85	6	0	93	602
05:15 PM	22	87	3	1	113	6	222	12	3	243	13	121	12	2	148	2	111	15	1	129	633
05:30 PM	27	90	3	1	121	7	202	11	3	223	13	86	13	0	112	11	211	17	0	239	695
05:45 PM	30	106	3	4	143	5	208	10	6	229	13	104	10	1	128	2	172	10	2	186	686
Total	95	363	17	6	481	29	840	49	19	937	56	450	42	3	551	17	579	48	3	647	2616
06:00 PM	17	111	8	1	137	5	225	9	3	242	16	98	0	1	115	4	193	16	0	213	707
06:15 PM	27	130	7	3	167	6	224	13	5	248	13	101	7	0	121	11	192	18	1	222	758
06:30 PM	24	86	7	3	120	5	236	14	5	260	24	116	7	1	148	6	166	16	3	191	719
06:45 PM	20	93	7	0	120	14	157	11	4	186	18	100	6	0	124	5	168	24	0	197	627
Total	88	420	29	7	544	30	842	47	17	936	71	415	20	2	508	26	719	74	4	823	2811
Grand Total	682	2641	314	35	3672	381	6010	559	158	7108	612	3595	243	41	4491	203	6310	876	16	7405	22676
Apprch %	18.6	71.9	8.6	1		5.4	84.6	7.9	2.2		13.6	80	5.4	0.9		2.7	85.2	11.8	0.2		
Total %	3	11.6	1.4	0.2	16.2	1.7	26.5	2.5	0.7	31.3	2.7	15.9	1.1	0.2	19.8	0.9	27.8	3.9	0.1	32.7	
Cars	624	2608	306	13	3551	359	5927	551	99	6936	586	3565	236	8	4395	191	6241	862	9	7303	22185
% Cars	91.5	98.8	97.5	37.1	96.7	94.2	98.6	98.6	62.7	97.6	95.8	99.2	97.1	19.5	97.9	94.1	98.9	98.4	56.2	98.6	97.8
Heavy Vehicles/Bikes	6	33	8	22	69	7	83	8	34	132	12	30	7	31	80	4	69	13	7	93	374
% Heavy Vehicles/Bikes	0.9	1.2	2.5	62.9	1.9	1.8	1.4	1.4	21.5	1.9	2	0.8	2.9	75.6	1.8	2	1.1	1.5	43.8	1.3	1.6
RTOR	52	0	0	0	52	15	0	0	25	40	14	0	0	2	16	8	0	1	0	9	117
% RTOR	7.6	0	0	0	1.4	3.9	0	0	15.8	0.6	2.3	0	0	4.9	0.4	3.9	0	0.1	0	0.1	0.5

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Location: Bethesda,MD
Intersection:RT191/RT188
Date:Thursday, April 23,2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
Start Date : 4/23/2009
Page No : 3

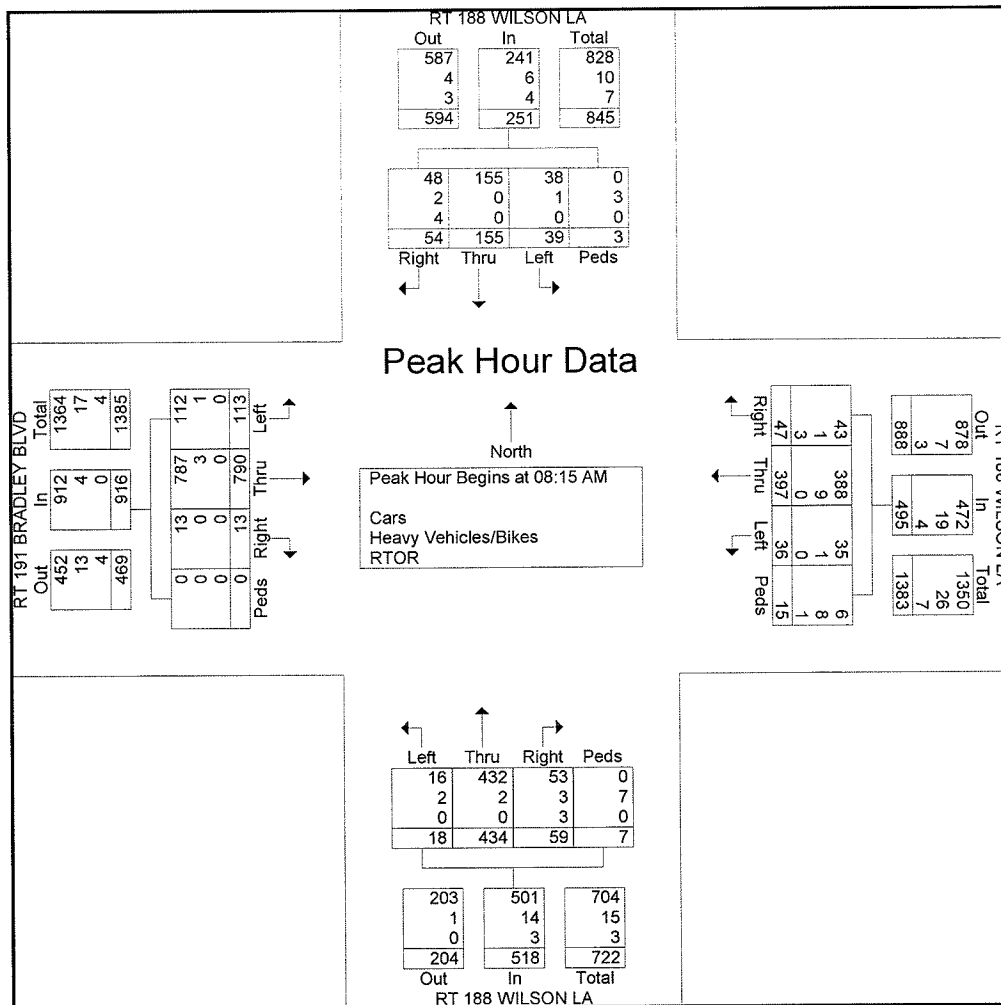


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Whitman, Requardt & Associates, LLP

Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
Start Date : 4/23/2009
Page No : 4

	RT 188 WILSON LA From North					RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:15 AM																					
08:15 AM	9	43	9	0	61	8	87	12	3	110	18	86	2	4	110	7	205	30	0	242	523
08:30 AM	17	36	7	3	63	20	91	6	5	122	12	105	10	0	127	2	203	31	0	236	548
08:45 AM	14	22	8	0	44	12	126	7	5	150	12	106	2	3	123	3	183	36	0	222	539
09:00 AM	14	54	15	0	83	7	93	11	2	113	17	137	4	0	158	1	199	16	0	216	570
Total Volume	54	155	39	3	251	47	397	36	15	495	59	434	18	7	518	13	790	113	0	916	2180
% App. Total	21.5	61.8	15.5	1.2		9.5	80.2	7.3	3		11.4	83.8	3.5	1.4		1.4	86.2	12.3	0		
PHF	.794	.718	.650	.250	.756	.588	.788	.750	.750	.825	.819	.792	.450	.438	.820	.464	.963	.785	.000	.946	.956
Cars	48	155	38	0	241	43	388	35	6	472	53	432	16	0	501	13	787	112	0	912	2126
% Cars	88.9	100	97.4	0	96.0	91.5	97.7	97.2	40.0	95.4	89.8	99.5	88.9	0	96.7	100	99.6	99.1	0	99.6	97.5
Heavy Vehicles/Bikes	3.7	0	2.6	100	2.4	2.1	2.3	2.8	53.3	3.8	5.1	0.5	11.1	100	2.7	0	0.4	0.9	0	0.4	2.0
% Heavy Vehicles/Bikes	4	0	0	0	4	3	0	0	1	4	3	0	0	0	3	0	0	0	0	0	11
RTOR	7.4	0	0	0	1.6	6.4	0	0	6.7	0.8	5.1	0	0	0	0.6	0	0	0	0	0	0.5

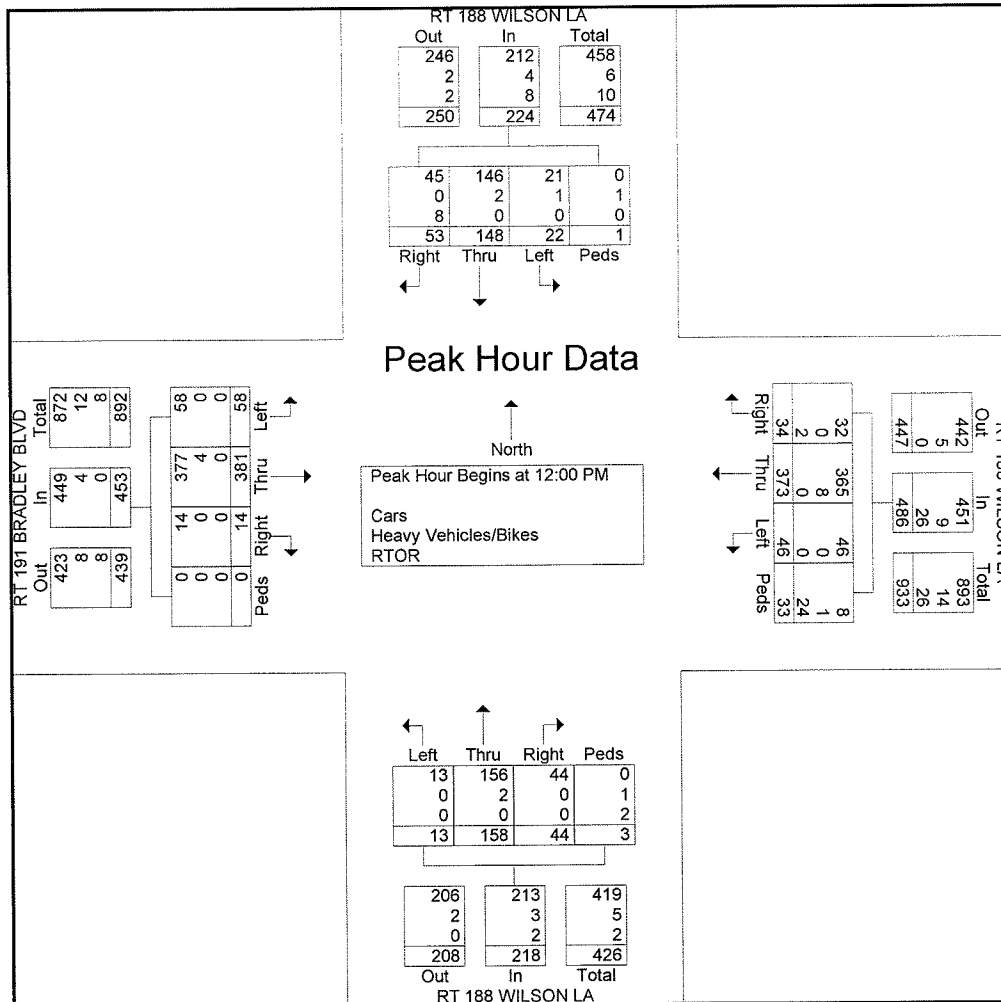


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Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
Start Date : 4/23/2009
Page No : 5

RT 188 WILSON LA From North						RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	9	43	4	0	56	6	87	12	5	110	12	48	8	0	68	5	91	17	0	113	347
12:15 PM	18	36	6	1	61	9	91	14	1	115	9	41	1	2	53	5	98	12	0	115	344
12:30 PM	12	32	6	0	50	9	94	12	25	140	13	26	3	1	43	3	97	13	0	113	346
12:45 PM	14	37	6	0	57	10	101	8	2	121	10	43	1	0	54	1	95	16	0	112	344
Total Volume	53	148	22	1	224	34	373	46	33	486	44	158	13	3	218	14	381	58	0	453	1381
% App. Total	23.7	66.1	9.8	0.4		7	76.7	9.5	6.8		20.2	72.5	6	1.4		3.1	84.1	12.8	0		
PHF	.736	.860	.917	.250	.918	.850	.923	.821	.330	.868	.846	.823	.406	.375	.801	.700	.972	.853	.000	.985	.995
Cars	45	146	21	0	212	32	365	46	8	451	44	156	13	0	213	14	377	58	0	449	1325
% Cars	84.9	98.6	95.5	0	94.6	94.1	97.9	100	24.2	92.8	100	98.7	100	0	97.7	100	99.0	100	0	99.1	95.9
Heavy Vehicles/Bikes	0	1.4	4.5	100	1.8	0	2.1	0	3.0	1.9	0	1.3	0	33.3	1.4	0	1.0	0	0	0.9	1.4
% Heavy Vehicles/Bikes	0	0.9	2.3	45.5	0.8	0	0.6	0	9.1	0.4	0	0.8	0	100.0	0.6	0	0.3	0	0	0.2	0.4
RTOR	8	0	0	0	8	2	0	0	24	26	0	0	0	2	2	0	0	0	0	0	36
% RTOR	15.1	0	0	0	3.6	5.9	0	0	72.7	5.3	0	0	0	66.7	0.9	0	0	0	0	0	2.6



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Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
Start Date : 4/23/2009
Page No : 6

	RT 188 WILSON LA From North					RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:45 PM																					
05:45 PM	30	106	3	4	143	5	208	10	6	229	13	104	10	1	128	2	172	10	2	186	686
06:00 PM	17	111	8	1	137	5	225	9	3	242	16	98	0	1	115	4	193	16	0	213	707
06:15 PM	27	130	7	3	167	6	224	13	5	248	13	101	7	0	121	11	192	18	1	222	758
06:30 PM	24	86	7	3	120	5	236	14	5	260	24	116	7	1	148	6	166	16	3	191	719
Total Volume	98	433	25	11	567	21	893	46	19	979	66	419	24	3	512	23	723	60	6	812	2870
% App. Total	17.3	76.4	4.4	1.9		2.1	91.2	4.7	1.9		12.9	81.8	4.7	0.6		2.8	89	7.4	0.7		
PHF	.817	.833	.781	.688	.849	.875	.946	.821	.792	.941	.688	.903	.600	.750	.865	.523	.937	.833	.500	.914	.947
Cars	88	429	25	6	548	21	891	46	16	974	63	417	24	2	506	23	719	60	2	804	2832
% Cars	89.8	99.1	100	54.5	96.6	100	99.8	100	84.2	99.5	95.5	99.5	100	66.7	98.8	100	99.4	100	33.3	99.0	98.7
Heavy Vehicles/Bikes	2.0	0.9	0	45.5	1.9	0	0.2	0	15.8	0.5	1.5	0.5	0	33.3	0.8	0	0.6	0	66.7	1.0	1.0
% Heavy Vehicles/Bikes	8	0	0	0	8	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	10
RTOR	8	0	0	0		0	0	0	0		2	0	0	0		0	0	0	0	0	
% RTOR	8.2	0	0	0	1.4	0	0	0	0	0	3.0	0	0	0	0.4	0	0	0	0	0	0.3

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Whitman, Requardt & Associates, LLP

Location: Bethesda, MD
Intersection: Bradley Blvd/Goldsboro Rd
Date: Saturday, April 26, 2009
Counter: LEM

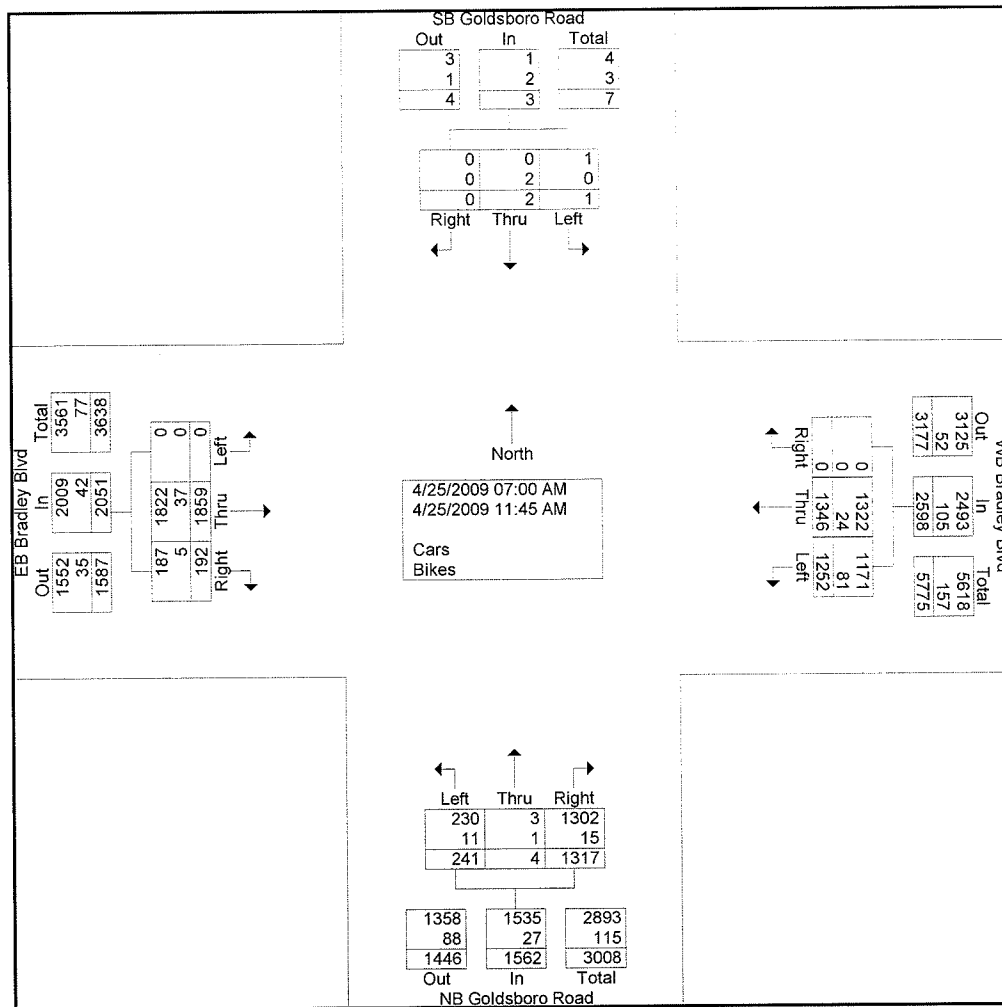
File Name : Sat_Bradley_Goldsboro
Site Code : 04250971
Start Date : 4/25/2009
Page No : 1

Groups Printed- Cars - Bikes																							
	SB Goldsboro Road From North					WB Bradley Blvd From East					NB Goldsboro Road From South					EB Bradley Blvd From West							
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	17	18	0	35	29	0	2	0	31	2	24	0	2	26	2	92	94
07:15 AM	0	0	0	0	0	0	26	84	0	110	22	0	0	0	22	5	37	0	0	42	0	174	174
07:30 AM	0	0	0	0	0	0	33	29	0	62	34	0	1	0	35	3	44	0	0	47	0	144	144
07:45 AM	0	0	0	0	0	0	38	32	0	70	47	0	7	0	54	6	40	0	0	46	0	170	170
Total	0	0	0	0	0	0	114	163	0	277	132	0	10	0	142	16	145	0	2	161	2	580	582
08:00 AM	0	0	0	0	0	0	28	39	0	67	43	0	9	0	52	5	41	0	0	46	0	165	165
08:15 AM	0	0	0	0	0	0	37	34	0	71	73	0	9	0	82	10	57	0	0	67	0	220	220
08:30 AM	0	0	0	0	0	0	52	56	0	108	54	0	5	0	59	14	74	0	0	88	0	255	255
08:45 AM	0	0	0	0	0	0	70	51	0	121	73	0	16	0	89	7	106	0	0	113	0	323	323
Total	0	0	0	0	0	0	187	180	0	367	243	0	39	0	282	36	278	0	0	314	0	963	963
09:00 AM	0	0	0	0	0	0	43	46	0	89	49	0	5	0	54	3	63	0	0	66	0	209	209
09:15 AM	0	0	0	0	0	0	65	65	0	130	57	0	12	0	69	9	92	0	0	101	0	300	300
09:30 AM	0	0	1	0	1	0	66	82	0	148	71	0	14	0	85	5	138	0	0	143	0	377	377
09:45 AM	0	0	0	0	0	0	88	70	0	158	93	0	21	0	114	14	149	0	0	163	0	435	435
Total	0	0	1	0	1	0	262	263	0	525	270	0	52	0	322	31	442	0	0	473	0	1321	1321
10:00 AM	0	1	0	0	1	0	89	80	0	169	88	0	21	0	109	10	106	0	0	116	0	395	395
10:15 AM	0	0	0	0	0	0	87	85	0	172	73	0	20	0	93	14	124	0	0	138	0	403	403
10:30 AM	0	0	0	0	0	0	83	78	0	161	85	0	18	0	103	12	109	0	0	121	0	385	385
10:45 AM	0	0	0	0	0	0	81	60	0	141	72	0	11	0	83	12	93	0	0	105	0	329	329
Total	0	1	0	0	1	0	340	303	0	643	318	0	70	0	388	48	432	0	0	480	0	1512	1512
11:00 AM	0	0	0	0	0	0	103	62	0	165	109	3	22	0	134	15	137	0	0	152	0	451	451
11:15 AM	0	0	0	0	0	0	93	100	0	193	66	0	17	0	83	16	125	0	0	141	0	417	417
11:30 AM	0	1	0	0	1	0	118	85	0	203	73	0	17	0	90	17	173	0	0	190	0	484	484
11:45 AM	0	0	0	0	0	0	129	96	0	225	106	1	14	0	121	13	127	0	0	140	0	486	486
Total	0	1	0	0	1	0	443	343	0	786	354	4	70	0	428	61	562	0	0	623	0	1838	1838
Grand Total	0	2	1	0	3	0	1346	1252	0	2598	1317	4	241	0	1562	192	1859	0	2	2051	2	6214	6216
Apprch %	0	66.7	33.3			0	51.8	48.2			84.3	0.3	15.4			9.4	90.6	0					
Total %	0	0	0		0	0	21.7	20.1		41.8	21.2	0.1	3.9		25.1	3.1	29.9	0		33	0	100	
Cars	0	0	1		1	0	1322	1171		2493	1302	3	230		1535	187	1822	0		2011	0	0	6040
% Cars	0	0	100		33.3	0	98.2	93.5	0	96	98.9	75	95.4	0	98.3	97.4	98	0	100	98	0	0	97.2
Bikes	0	2	0		2	0	24	81		105	15	1	11		27	5	37	0		42	0	0	176
% Bikes	0	100	0		66.7	0	1.8	6.5	0	4	1.1	25	4.6	0	1.7	2.6	2	0	0	2	0	0	2.8

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File Name : Sat_Bradley_Goldsboro
 Site Code : 04250971
 Start Date : 4/25/2009
 Page No : 2



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File Name : Sat_Bradley_Goldsboro
Site Code : 04250971
Start Date : 4/25/2009
Page No : 3

	SB Goldsboro Road From North				WB Bradley Blvd From East				NB Goldsboro Road From South				EB Bradley Blvd From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:00 AM																	
11:00 AM	0	0	0	0	0	103	62	165	109	3	22	134	15	137	0	152	451
11:15 AM	0	0	0	0	0	93	100	193	66	0	17	83	16	125	0	141	417
11:30 AM	0	1	0	1	0	118	85	203	73	0	17	90	17	173	0	190	484
11:45 AM	0	0	0	0	0	129	96	225	106	1	14	121	13	127	0	140	486
Total Volume	0	1	0	1	0	443	343	786	354	4	70	428	61	562	0	623	1838
% App. Total	0	100	0		0	56.4	43.6		82.7	0.9	16.4		9.8	90.2	0		
PHF	.000	.250	.000	.250	.000	.859	.858	.873	.812	.333	.795	.799	.897	.812	.000	.820	.945

Traffic Study

APPENDIX D

Critical Lane Volume Analysis Worksheets

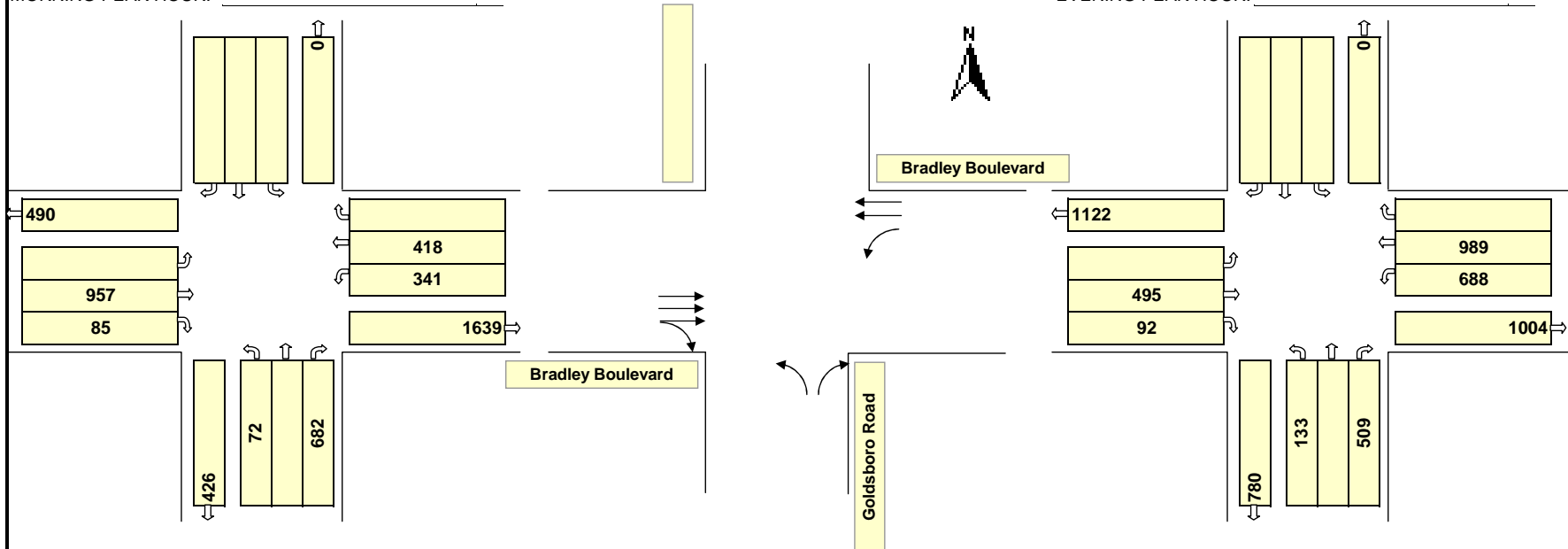


TURNING MOVEMENT SUMMARY AND LEVEL OF SERVICE

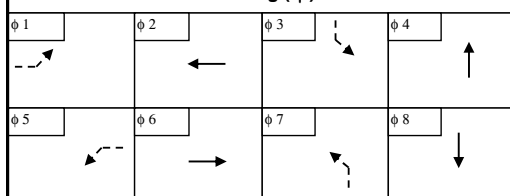
Project: **Bradley Boulevard Bikeway** WR&A W.O. #: **31681-002**
 Location: **Bradley Boulevard @ Goldsboro Road** County: **Montgomery**
 Condition: **Existing (2009)** Computed by: **EFH** Date: **07/21/09**

MORNING PEAK HOUR: 7:45-8:45 AM

EVENING PEAK HOUR: 5:30-6:30 PM



Phasing (φ)



Intersection Control: Signal ☒ Stop ☐ -Way

RTOR: NB ☒ SB ☐ EB ☒ WB ☐

No. of Lanes	Lane Use Factor	Service Level	Critical Lane Volume	Opposing Volume (vhp)	L.T. Factor (PCE)
1	= 1.00	1000 A	1000	199	1.1
2	= 0.55	1150 B	1150	599	2.0
3	= 0.40	1300 C	1300	799	3.0
4	= 0.30	1450 D	1450	999	4.0
Double L.T.	= 0.60	1600 E	1600	1000	5.0

φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*	φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*	
4	NBL	▼	0	0	1.0	72	1.00	72	0	72	<input type="checkbox"/>	1	NBL	▼	0	0	1.0	133	1.00	133	0	133	<input checked="" type="checkbox"/>	
8		▼	0	0	0.0	0	1.00	0	0	0	<input type="checkbox"/>	2		▼	0	0	0.0	0	1.00	0	0	0	<input type="checkbox"/>	
6	EBTR+WBL	▼	85	957	0.0	0	1042	0.40	417	341	<input checked="" type="checkbox"/>	3	EBTR+WBL	▼	92	495	0.0	0	587	0.40	235	688	923	<input checked="" type="checkbox"/>
2	WBT	▼	0	418	0.0	0	418	0.55	230	0	<input type="checkbox"/>	4	WBT	▼	0	989	0.0	0	989	0.55	544	0	544	<input type="checkbox"/>
		▼									<input type="checkbox"/>			▼									<input type="checkbox"/>	
	NBR-WBL		341			341	1.00	341	0	341	<input checked="" type="checkbox"/>												<input type="checkbox"/>	

Remarks:

* Critical Volume

TOTAL: **1099**
 Level of Service: **B**
 V/C: **0.69**

Remarks:

* Critical Volume

TOTAL: **1056**
 Level of Service: **B**
 V/C: **0.66**

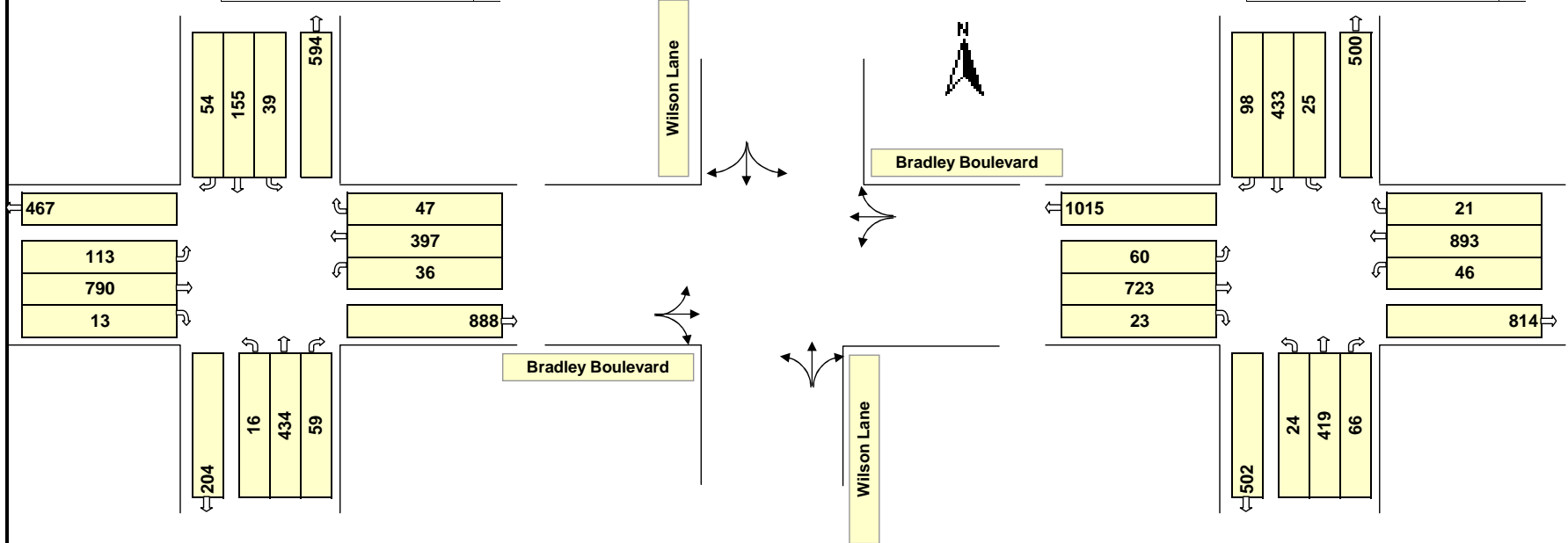


TURNING MOVEMENT SUMMARY AND LEVEL OF SERVICE

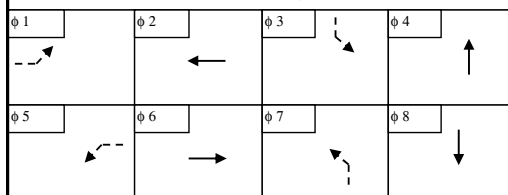
Project: **Bradley Boulevard Bikeway** WR&A W.O. #: **31681-002**
Location: **Bradley Boulevard @ Wilson Lane** County: **Montgomery**
Condition: **Existing (2009)** Computed by: **EFH** Date: **07/21/09**
No Left-Turn Lanes

MORNING PEAK HOUR: 7:45-8:45 AM

EVENING PEAK HOUR: 5:45-6:45 PM



Phasing (φ)



Intersection Control: Signal ☒ Stop ☐ -Way

RTOR: NB ☒ SB ☒ EB ☒ WB ☒

No. of Lanes	Lane Use Factor	Service Level	Critical Lane Volume	Opposing Volume (vhp)	L.T. Factor (PCE)
1	= 1.00	1000 A	1000	199	1.1
2	= 0.55	1150 B	1150	599	2.0
3	= 0.40	1300 C	1300	799	3.0
4	= 0.30	1450 D	1450	999	4.0
Double L.T.	= 0.60	1600 E	1600	1000	5.0

φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*	φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*
4	NBRTL+SBL ▼	59	434	2.0	16	525	1.00	525	39	564	☑	1	NBRTL+SBL ▼	66	419	2.0	24	533	1.00	533	25	558	☐
8	SBRTL+NBL ▼	54	155	2.0	39	287	1.00	287	16	303	☐	2	SBRTL+NBL ▼	98	433	2.0	25	581	1.00	581	24	605	☑
6	EBRTL+WBL ▼	13	790	2.0	113	1029	1.00	1029	36	1065	☑	3	EBRTL+WBL ▼	23	723	4.0	60	986	1.00	986	46	1032	☐
2	WBRTL+EBL ▼	47	397	4.0	36	588	1.00	588	113	701	☐	4	WBRTL+EBL ▼	21	893	3.0	46	1052	1.00	1052	60	1112	☑
	▼										☐		▼										☐
	▼										☐		▼										☐

Remarks:

* Critical Volume

TOTAL: **1629**
Level of Service: **F**

V/C: **1.02**

Remarks:

* Critical Volume

TOTAL: **1717**
Level of Service: **F**

V/C: **1.07**

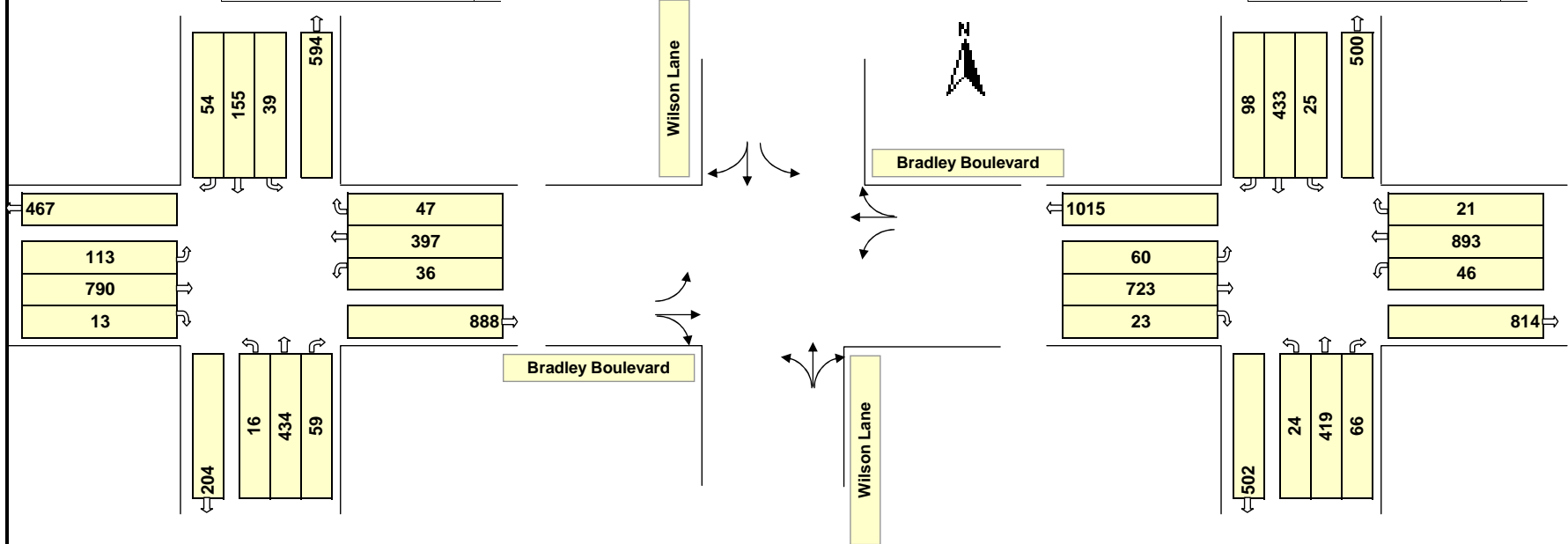


TURNING MOVEMENT SUMMARY AND LEVEL OF SERVICE

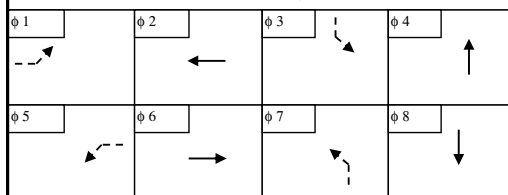
Project: **Bradley Boulevard Bikeway** WR&A W.O. #: **31681-002**
Location: **Bradley Boulevard @ Wilson Lane** County: **Montgomery**
Condition: **Existing (2009)** Computed by: **EFH** Date: **07/21/09**
With Effective Left-Turn Lanes

MORNING PEAK HOUR: 7:45-8:45 AM

EVENING PEAK HOUR: 5:45-6:45 PM



Phasing (φ)



Intersection Control: Signal ☒ Stop ☐ -Way

RTOR: NB ☒ SB ☒ EB ☒ WB ☒

No. of Lanes	Lane Use Factor	Service Level	Critical Lane Volume	Opposing Volume (vhp)	L.T. Factor (PCE)
1	= 1.00	1000 A	1000	199	1.1
2	= 0.55	1150 B	1150	599	2.0
3	= 0.40	1300 C	1300	799	3.0
4	= 0.30	1450 D	1450	999	4.0
Double L.T.	= 0.60	1600 E	1600	1000	5.0

φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*	φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*
4	NBRTL+SBL ▼	59	434	2.0	16	525	1.00	525	39	564	☑	1	NBRTL+SBL ▼	66	419	2.0	24	533	1.00	533	25	558	☑
8	SBTR+NBL ▼	54	155	0.0	0	209	1.00	209	16	225	☐	2	SBTR+NBL ▼	98	433	0.0	0	531	1.00	531	24	555	☐
6	EBTR+WBL ▼	13	790	0.0	0	803	1.00	803	36	839	☑	3	EBTR+WBL ▼	23	723	0.0	0	746	1.00	746	46	792	☐
2	WBTR+EBL ▼	47	397	0.0	0	444	1.00	444	113	557	☐	4	WBTR+EBL ▼	21	893	0.0	0	914	1.00	914	60	974	☑
	▼										☐		▼										☐
	▼										☐		▼										☐

Remarks:

* Critical Volume

TOTAL: **1403**
Level of Service: **D**
V/C: **0.88**

Remarks:

* Critical Volume

TOTAL: **1532**
Level of Service: **E**
V/C: **0.96**

Traffic Study

APPENDIX E

SimTraffic Output

SimTraffic Simulation Summary

AM Peak with Left Turn Lanes

6/25/2009

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvl's	1	1	1	1	1	1
Vehs Entered	3258	3432	3218	3311	3278	3298
Vehs Exited	3271	3403	3228	3308	3284	3299
Starting Vehs	136	133	136	120	131	131
Ending Vehs	123	162	126	123	125	131
Denied Entry Before	1	2	0	3	5	1
Denied Entry After	4	6	1	2	7	4
Travel Distance (mi)	2695	2810	2714	2704	2720	2729
Travel Time (hr)	132.7	152.3	121.0	122.6	126.1	130.9
Total Delay (hr)	50.4	66.6	38.5	40.0	43.1	47.8
Total Stops	3542	4386	3082	3197	3295	3499
Fuel Used (gal)	947.5	1024.6	929.2	927.2	939.9	953.7

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:45					
End Time	8:45					
Total Time (min)	60					
Volumes adjusted by Growth Factors.						
Run Number	1	2	3	4	5	Avg
Vehs Entered	3258	3432	3218	3311	3278	3298
Vehs Exited	3271	3403	3228	3308	3284	3299
Starting Vehs	136	133	136	120	131	131
Ending Vehs	123	162	126	123	125	131
Denied Entry Before	1	2	0	3	5	1
Denied Entry After	4	6	1	2	7	4
Travel Distance (mi)	2695	2810	2714	2704	2720	2729
Travel Time (hr)	132.7	152.3	121.0	122.6	126.1	130.9
Total Delay (hr)	50.4	66.6	38.5	40.0	43.1	47.8
Total Stops	3542	4386	3082	3197	3295	3499
Fuel Used (gal)	947.5	1024.6	929.2	927.2	939.9	953.7

SimTraffic Performance Report
AM Peak with Left Turn Lanes

6/25/2009

1: Wilson Ln & Bradley Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	14.0	2.5	2.5	8.7	27.6
Delay / Veh (s)	99.7	37.5	18.9	34.6	46.8
Total Stops	770	184	235	682	1871
Travel Dist (mi)	154.6	57.5	211.0	145.8	568.9
Travel Time (hr)	19.2	4.5	8.5	12.9	45.0
Avg Speed (mph)	8	13	25	12	13
Fuel Used (gal)	74.9	21.9	58.6	59.9	215.4
HC Emissions (g)	4	1	5	2	13
CO Emissions (g)	1098	392	949	1107	3546
NOx Emissions (g)	13	4	18	10	45
Vehicles Entered	510	234	480	901	2125
Vehicles Exited	499	236	481	900	2116
Hourly Exit Rate	499	236	481	900	2116
Input Volume	509	248	490	916	2163
% of Volume	98	95	98	98	98
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Bradley Blvd & Goldsboro Rd Performance by approach

Approach	EB	WB	NE	All
Total Delay (hr)	6.4	3.9	5.7	16.0
Delay / Veh (s)	22.8	18.9	26.8	22.9
Total Stops	562	439	618	1619
Travel Dist (mi)	337.1	222.9	164.3	724.3
Travel Time (hr)	16.5	10.0	12.0	38.5
Avg Speed (mph)	21	24	17	20
Fuel Used (gal)	104.4	64.3	53.2	222.0
HC Emissions (g)	6	6	2	14
CO Emissions (g)	1718	1784	725	4227
NOx Emissions (g)	22	22	7	51
Vehicles Entered	1015	747	758	2520
Vehicles Exited	1015	747	761	2523
Hourly Exit Rate	1015	747	761	2523
Input Volume	1042	759	754	2555
% of Volume	97	98	101	99
Denied Entry Before	0	0	1	1
Denied Entry After	0	1	3	4

SimTraffic Performance Report
AM Peak with Left Turn Lanes

6/25/2009

Total Network Performance

Total Delay (hr)	47.8
Delay / Veh (s)	52.1
Total Stops	3499
Travel Dist (mi)	2728.6
Travel Time (hr)	130.9
Avg Speed (mph)	21
Fuel Used (gal)	953.7
HC Emissions (g)	72
CO Emissions (g)	23951
NOx Emissions (g)	269
Vehicles Entered	3298
Vehicles Exited	3299
Hourly Exit Rate	3299
Input Volume	9426
% of Volume	35
Denied Entry Before	1
Denied Entry After	4

Queuing and Blocking Report

AM Peak with Left Turn Lanes

6/25/2009

Intersection: 1: Wilson Ln & Bradley Blvd

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR	L	TR
Maximum Queue (ft)	808	98	237	99	328	100	835
Average Queue (ft)	556	40	118	31	153	52	438
95th Queue (ft)	1096	91	211	79	287	105	762
Link Distance (ft)	1612		1287		2293		853
Upstream Blk Time (%)							1
Queuing Penalty (veh)							0
Storage Bay Dist (ft)		75		75		75	
Storage Blk Time (%)		6	21	1	20	4	33
Queuing Penalty (veh)		12	8	5	7	30	37

Intersection: 3: Bradley Blvd & Goldsboro Rd

Movement	EB	EB	EB	WB	WB	WB	NE	NE
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	234	251	218	265	234	174	382	221
Average Queue (ft)	129	135	135	137	50	65	53	143
95th Queue (ft)	208	216	209	242	171	152	210	233
Link Distance (ft)	1840				1574	1574	1119	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		110	110	195				101
Storage Blk Time (%)	11	12	12	5			0	20
Queuing Penalty (veh)	77	38	39	10			2	15

Network Summary

Network wide Queuing Penalty: 280

SimTraffic Simulation Summary PM Peak with Left Turn Lanes

6/25/2009

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	5:20	5:20	5:20	5:20	5:20	5:20
End Time	6:30	6:30	6:30	6:30	6:30	6:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvl	1	1	1	1	1	1
Vehs Entered	4127	4005	4084	4087	4080	4078
Vehs Exited	4020	3949	4035	4082	3985	4014
Starting Vehs	175	205	176	196	180	186
Ending Vehs	282	261	225	201	275	248
Denied Entry Before	3	5	1	3	10	4
Denied Entry After	89	257	80	82	111	124
Travel Distance (mi)	3370	3304	3340	3404	3339	3351
Travel Time (hr)	289.5	330.9	245.6	246.3	260.7	274.6
Total Delay (hr)	188.5	231.9	145.7	144.0	160.5	174.1
Total Stops	6763	6766	5742	5897	6750	6383
Fuel Used (gal)	1482.0	1553.9	1358.4	1383.0	1394.9	1434.4

Interval #0 Information Seeding

Start Time	5:20
End Time	5:30
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:30
End Time	6:30
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	4127	4005	4084	4087	4080	4078
Vehs Exited	4020	3949	4035	4082	3985	4014
Starting Vehs	175	205	176	196	180	186
Ending Vehs	282	261	225	201	275	248
Denied Entry Before	3	5	1	3	10	4
Denied Entry After	89	257	80	82	111	124
Travel Distance (mi)	3370	3304	3340	3404	3339	3351
Travel Time (hr)	289.5	330.9	245.6	246.3	260.7	274.6
Total Delay (hr)	188.5	231.9	145.7	144.0	160.5	174.1
Total Stops	6763	6766	5742	5897	6750	6383
Fuel Used (gal)	1482.0	1553.9	1358.4	1383.0	1394.9	1434.4

1: Wilson Ln & Bradley Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	95.7	16.5	12.1	19.2	143.5
Delay / Veh (s)	874.6	108.2	38.9	88.3	181.6
Total Stops	1748	870	866	779	4263
Travel Dist (mi)	117.8	134.0	462.6	126.7	841.1
Travel Time (hr)	99.8	21.1	25.1	22.8	168.8
Avg Speed (mph)	2	6	18	8	7
Fuel Used (gal)	254.9	75.7	143.2	79.2	553.0
HC Emissions (g)	5	4	7	3	20
CO Emissions (g)	2078	1073	1566	1306	6023
NOx Emissions (g)	14	12	27	12	64
Vehicles Entered	409	556	1118	791	2874
Vehicles Exited	379	542	1120	775	2816
Hourly Exit Rate	379	542	1120	775	2816
Input Volume	509	556	1122	806	2993
% of Volume	74	97	100	96	94
Denied Entry Before	0	0	0	0	0
Denied Entry After	102	0	0	13	115

3: Bradley Blvd & Goldsboro Rd Performance by approach

Approach	EB	WB	NE	All
Total Delay (hr)	3.6	17.5	3.5	24.5
Delay / Veh (s)	16.7	37.5	19.6	28.6
Total Stops	325	1233	530	2088
Travel Dist (mi)	236.8	499.8	138.1	874.7
Travel Time (hr)	10.7	31.0	8.7	50.4
Avg Speed (mph)	22	21	18	21
Fuel Used (gal)	72.0	157.3	43.3	272.6
HC Emissions (g)	6	14	3	23
CO Emissions (g)	1496	4264	812	6572
NOx Emissions (g)	19	48	9	76
Vehicles Entered	770	1677	640	3087
Vehicles Exited	771	1675	635	3081
Hourly Exit Rate	771	1675	635	3081
Input Volume	818	1677	642	3137
% of Volume	94	100	99	98
Denied Entry Before	0	3	1	4
Denied Entry After	0	6	3	9

Total Network Performance

Total Delay (hr)	174.1
Delay / Veh (s)	155.0
Total Stops	6383
Travel Dist (mi)	3351.3
Travel Time (hr)	274.6
Avg Speed (mph)	15
Fuel Used (gal)	1434.4
HC Emissions (g)	104
CO Emissions (g)	32920
NOx Emissions (g)	368
Vehicles Entered	4078
Vehicles Exited	4014
Hourly Exit Rate	4014
Input Volume	11867
% of Volume	34
Denied Entry Before	4
Denied Entry After	124

Queuing and Blocking Report
PM Peak with Left Turn Lanes

6/25/2009

Intersection: 1: Wilson Ln & Bradley Blvd

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR	L	TR
Maximum Queue (ft)	1647	98	1127	99	1224	99	821
Average Queue (ft)	1510	21	632	35	607	60	481
95th Queue (ft)	1884	69	1169	81	1064	111	890
Link Distance (ft)	1611		1287		2293		853
Upstream Blk Time (%)	59		2				13
Queuing Penalty (veh)	0		0				0
Storage Bay Dist (ft)		75		75		75	
Storage Blk Time (%)		0	62	2	37	22	32
Queuing Penalty (veh)		0	16	19	17	165	19

Intersection: 3: Bradley Blvd & Goldsboro Rd

Movement	EB	EB	EB	WB	WB	WB	NE	NE
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	165	159	188	280	485	454	149	152
Average Queue (ft)	72	73	89	217	202	187	73	55
95th Queue (ft)	140	141	161	312	441	375	132	107
Link Distance (ft)	1840				1574	1574	1119	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		110	110	195				101
Storage Blk Time (%)	3	3	6	12	5		6	1
Queuing Penalty (veh)	11	5	10	60	32		29	1

Network Summary

Network wide Queuing Penalty: 385

SimTraffic Simulation Summary
 AM Peak (Base) - No Left Turn Lanes

6/26/2009

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvl	1	1	1	1	1	1
Vehs Entered	3101	3268	3072	3133	3111	3138
Vehs Exited	3094	3232	3064	3118	3110	3123
Starting Vehs	171	144	137	131	153	148
Ending Vehs	178	180	145	146	154	161
Denied Entry Before	7	4	22	7	15	10
Denied Entry After	186	165	170	193	190	181
Travel Distance (mi)	2508	2624	2545	2510	2542	2546
Travel Time (hr)	296.1	228.0	249.6	245.6	209.2	245.7
Total Delay (hr)	219.4	147.9	172.2	168.8	131.4	167.9
Total Stops	5806	5184	4781	4232	4586	4918
Fuel Used (gal)	1292.1	1162.6	1196.1	1172.4	1095.9	1183.8

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	3101	3268	3072	3133	3111	3138
Vehs Exited	3094	3232	3064	3118	3110	3123
Starting Vehs	171	144	137	131	153	148
Ending Vehs	178	180	145	146	154	161
Denied Entry Before	7	4	22	7	15	10
Denied Entry After	186	165	170	193	190	181
Travel Distance (mi)	2508	2624	2545	2510	2542	2546
Travel Time (hr)	296.1	228.0	249.6	245.6	209.2	245.7
Total Delay (hr)	219.4	147.9	172.2	168.8	131.4	167.9
Total Stops	5806	5184	4781	4232	4586	4918
Fuel Used (gal)	1292.1	1162.6	1196.1	1172.4	1095.9	1183.8

1: Wilson Ln & Bradley Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	22.3	10.7	6.5	110.7	150.3
Delay / Veh (s)	161.4	164.6	48.3	537.7	275.9
Total Stops	1040	396	444	1529	3409
Travel Dist (mi)	153.4	58.1	213.3	120.9	545.7
Travel Time (hr)	27.6	12.8	12.6	114.1	167.0
Avg Speed (mph)	6	5	17	4	7
Fuel Used (gal)	94.5	42.0	67.8	291.0	495.4
HC Emissions (g)	5	2	6	1	14
CO Emissions (g)	1247	621	1018	1662	4548
NOx Emissions (g)	14	6	19	8	47
Vehicles Entered	508	237	485	741	1971
Vehicles Exited	489	234	487	742	1952
Hourly Exit Rate	489	234	487	742	1952
Input Volume	509	248	490	916	2163
% of Volume	96	94	99	81	90
Denied Entry Before	0	0	0	9	9
Denied Entry After	3	0	0	174	177

3: Bradley Blvd & Goldsboro Rd Performance by approach

Approach	EB	WB	NE	All
Total Delay (hr)	5.2	3.5	5.1	13.8
Delay / Veh (s)	21.5	16.4	24.5	20.8
Total Stops	487	418	596	1501
Travel Dist (mi)	287.3	225.1	162.7	675.1
Travel Time (hr)	13.8	9.6	11.4	34.8
Avg Speed (mph)	21	25	18	21
Fuel Used (gal)	88.3	63.3	51.6	203.3
HC Emissions (g)	6	6	2	14
CO Emissions (g)	1511	1793	709	4014
NOx Emissions (g)	20	22	7	49
Vehicles Entered	876	755	750	2381
Vehicles Exited	876	756	755	2387
Hourly Exit Rate	876	756	755	2387
Input Volume	1042	759	754	2555
% of Volume	84	100	100	93
Denied Entry Before	0	0	1	1
Denied Entry After	0	1	3	4

Total Network Performance

Total Delay (hr)	167.9
Delay / Veh (s)	193.2
Total Stops	4918
Travel Dist (mi)	2545.7
Travel Time (hr)	245.7
Avg Speed (mph)	16
Fuel Used (gal)	1183.8
HC Emissions (g)	71
CO Emissions (g)	24590
NOx Emissions (g)	264
Vehicles Entered	3138
Vehicles Exited	3123
Hourly Exit Rate	3123
Input Volume	9426
% of Volume	33
Denied Entry Before	10
Denied Entry After	181

Queuing and Blocking Report
 AM Peak (Base) - *No Left Turn Lanes*

6/26/2009

Intersection: 1: Wilson Ln & Bradley Blvd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	1076	799	768	878
Average Queue (ft)	748	353	291	869
95th Queue (ft)	1547	718	721	912
Link Distance (ft)	1618	1293	2299	859
Upstream Blk Time (%)	8			56
Queuing Penalty (veh)	0			0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Bradley Blvd & Goldsboro Rd

Movement	EB	EB	EB	WB	WB	WB	NE	NE
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	215	222	210	275	234	113	386	220
Average Queue (ft)	111	116	119	126	46	58	50	129
95th Queue (ft)	182	190	190	227	130	102	185	223
Link Distance (ft)	1840				1574	1574	1119	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		110	110	195				101
Storage Blk Time (%)	7	8	9	3			0	16
Queuing Penalty (veh)	54	25	29	5			1	11

Network Summary

Network wide Queuing Penalty: 125

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	5:20	5:20	5:20	5:20	5:20	5:20
End Time	6:30	6:30	6:30	6:30	6:30	6:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvl's	1	1	1	1	1	1
Vehs Entered	3612	3495	3828	3685	3596	3644
Vehs Exited	3334	3336	3593	3544	3363	3434
Starting Vehs	232	273	226	266	227	244
Ending Vehs	510	432	461	407	460	452
Denied Entry Before	3	9	2	3	10	5
Denied Entry After	613	812	349	476	597	571
Travel Distance (mi)	2744	2775	2996	2914	2778	2841
Travel Time (hr)	620.0	795.9	518.5	544.9	594.6	614.8
Total Delay (hr)	536.9	712.1	428.8	457.1	510.3	529.0
Total Stops	14170	16346	13934	13615	14830	14578
Fuel Used (gal)	2096.4	2518.4	1920.8	1961.3	2043.3	2108.0

Interval #0 Information Seeding

Start Time	5:20
End Time	5:30
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:30
End Time	6:30
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	3612	3495	3828	3685	3596	3644
Vehs Exited	3334	3336	3593	3544	3363	3434
Starting Vehs	232	273	226	266	227	244
Ending Vehs	510	432	461	407	460	452
Denied Entry Before	3	9	2	3	10	5
Denied Entry After	613	812	349	476	597	571
Travel Distance (mi)	2744	2775	2996	2914	2778	2841
Travel Time (hr)	620.0	795.9	518.5	544.9	594.6	614.8
Total Delay (hr)	536.9	712.1	428.8	457.1	510.3	529.0
Total Stops	14170	16346	13934	13615	14830	14578
Fuel Used (gal)	2096.4	2518.4	1920.8	1961.3	2043.3	2108.0

1: Wilson Ln & Bradley Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	80.8	88.5	66.7	119.6	355.6
Delay / Veh (s)	689.7	696.9	269.4	712.7	539.0
Total Stops	1725	1640	3662	1226	8253
Travel Dist (mi)	127.5	111.5	367.7	98.2	704.9
Travel Time (hr)	85.2	92.3	77.0	122.3	376.9
Avg Speed (mph)	2	2	5	3	3
Fuel Used (gal)	223.8	236.8	260.3	303.2	1024.0
HC Emissions (g)	5	6	8	6	25
CO Emissions (g)	1891	2008	2621	2358	8877
NOx Emissions (g)	14	14	33	13	75
Vehicles Entered	441	463	900	612	2416
Vehicles Exited	404	453	883	597	2337
Hourly Exit Rate	404	453	883	597	2337
Input Volume	509	556	1122	806	2993
% of Volume	79	81	79	74	78
Denied Entry Before	0	0	0	1	1
Denied Entry After	72	92	0	199	363

3: Bradley Blvd & Goldsboro Rd Performance by approach

Approach	EB	WB	NE	All
Total Delay (hr)	2.8	121.6	6.0	130.5
Delay / Veh (s)	16.7	304.2	34.0	174.5
Total Stops	261	3088	651	4000
Travel Dist (mi)	188.9	430.3	138.8	758.0
Travel Time (hr)	8.5	133.3	11.3	153.1
Avg Speed (mph)	22	6	14	9
Fuel Used (gal)	57.1	384.7	49.9	491.7
HC Emissions (g)	5	17	4	26
CO Emissions (g)	1203	5423	937	7563
NOx Emissions (g)	16	48	10	74
Vehicles Entered	614	1480	643	2737
Vehicles Exited	614	1397	637	2648
Hourly Exit Rate	614	1397	637	2648
Input Volume	818	1677	642	3137
% of Volume	75	83	99	84
Denied Entry Before	0	3	1	4
Denied Entry After	0	205	3	208

SimTraffic Performance Report
PM Peak (Base) - No Left Turn Lanes

6/26/2009

Total Network Performance

Total Delay (hr)	529.0
Delay / Veh (s)	538.3
Total Stops	14578
Travel Dist (mi)	2841.3
Travel Time (hr)	614.8
Avg Speed (mph)	7
Fuel Used (gal)	2108.0
HC Emissions (g)	103
CO Emissions (g)	33460
NOx Emissions (g)	339
Vehicles Entered	3644
Vehicles Exited	3434
Hourly Exit Rate	3434
Input Volume	11867
% of Volume	29
Denied Entry Before	5
Denied Entry After	571

Queuing and Blocking Report
 PM Peak (Base) - No Left Turn Lanes

6/26/2009

Intersection: 1: Wilson Ln & Bradley Blvd

Movement	EB	WB	NB	B2	SB
Directions Served	LTR	LTR	LTR	T	LTR
Maximum Queue (ft)	1651	1322	2381	1878	896
Average Queue (ft)	1492	1282	2358	1523	843
95th Queue (ft)	1944	1453	2508	2425	1035
Link Distance (ft)	1619	1293	2299	1840	859
Upstream Blk Time (%)	49	66	46	20	59
Queuing Penalty (veh)	0	0	514	223	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Bradley Blvd & Goldsboro Rd

Movement	EB	EB	EB	WB	WB	WB	NE	NE
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	161	150	169	280	1596	1589	572	208
Average Queue (ft)	65	64	77	242	898	840	154	73
95th Queue (ft)	136	131	148	346	1973	1843	516	176
Link Distance (ft)	1840				1574	1574	1119	
Upstream Blk Time (%)					17	6	0	
Queuing Penalty (veh)					0	0	0	
Storage Bay Dist (ft)		110	110	195				101
Storage Blk Time (%)	2	3	5	12	52		23	2
Queuing Penalty (veh)	11	4	7	58	355		117	3

Network Summary

Network wide Queuing Penalty: 1292

Traffic Study

APPENDIX F

Crash Data

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Bradley Blvd from Wilson La to GoldBoro Rd (2003-07)

Total Accidents: 57

Vehicle Occupants

Injured: 32
Killed: 0

Pedestrians

Injured: 4
Killed: 0

Harmful Events (Top 2)

Other Vehicle 41
Fixed Object 9

Accident Severity

Not injured 26
Possible Injury 6
Injured 10
Disabled 2
Fatal 0

Intersection Related

Non-intersection 11
Intersection 38
Intersection-related 8
Driveway-Access 0
Non-intersection 0
Intersection 0
Intersection-related 0
Driveway-Access 0
Other 0
Unknown 0

Contributing Circumstances (Top 2)

Failed to give full time/attention 21
Failed to yield right-of-way 15

Time Of Day

6:00 a.m. - 10:00 a.m.: 4 10:00 a.m. - 4:00 p.m.: 20 4:00 p.m. - 8:00 p.m.: 16 8:00 p.m. - 6:00 a.m.: 10

Weather

N/A 0
Clear / Cloudy 44
Foggy 0
Raining 13
Snow / Sleet 0
Severe winds 0
Other 0
Unknown 0

Road Surface

N/A 0
Wet 19
Dry 38
Snow 0
Ice 0
Mud 0
Other 0
Unknown 0

Illumination

N/A 0
Daylight 36
Dawn / Dusk 2
Dark / Lights on 17
Dark / No Lights 2
Other 0
Unknown 0

Collision Type

DATE: 2/2/2003 HOUR 1 AM REPORT NUMBER: 9730958

Location Route: MD 191 Mile: 5.42 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Non-intersection

Severity Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Off Road

Vehicle #1 Direction: South **Vehicle #2** Direction: N/A
Type: Automobile Type: N/A
Movement: Moving at Constant Speed Movement: N/A
Drvr Cond: Had been drinking Drvr Cond: N/A

Conditions: Weather: Clear / Cloudy Surface: Wet Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and level

Causes: 1) Under influence of alcohol
2) What is Code 00?

DATE: 2/12/2003 HOUR 3 PM REPORT NUMBER: 9731402

Location Route: MD 191 Mile: 4.92 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity Injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 2 Pedestrians Injured: 0

Events Collision Type: 14 Harmful Events: 1) Other Vehicle
2) N/A

Vehicle #1 Direction: West **Vehicle #2** Direction: North
Type: Automobile Type: Pickup Truck
Movement: Making Left Turn Movement: Moving at Constant Speed
Drvr Cond: Apparently normal Drvr Cond: Apparently normal

Conditions: Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes: 1) Failed to yield right-of-way
2) What is Code 00?

DATE: 3/7/2003 HOUR 1 PM REPORT NUMBER: 9731614

Location Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: W1 Intersection

Severity Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) Unknown

Vehicle #1 Direction: North **Vehicle #2** Direction: West
Type: Automobile Type: Van
Movement: Starting from Traffic Lane Movement: Moving at Constant Speed
Drvr Cond: Apparently normal Drvr Cond: Apparently normal

Conditions: Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes: 1) Failed to give full time/attention
2) Failed to give full time/attention

DATE: 8/27/2003

HOUR 9 PM

REPORT NUMBER: 9731634

Location

Route: MD 191 Mile: 4.72 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection-related

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
Rear-End 2) Fixed Object

Vehicle #1

Direction: South
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Recreational Vehicle
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Wet Light: Dark / Li Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Following too closely
- 2) What is Code 00?

DATE: 9/30/2003

HOUR 8 AM

REPORT NUMBER: 9731638

Location

Route: MD 191 Mile: 5.31 County: 15 Municipality:
Name: No Match Lane: N1 Intersection-related

Severity

Injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 5 Harmful Events: 1) Other Vehicle
Rear-End into Left Turning Vehicle 2) N/A

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 10/13/2003

HOUR 10 PM

REPORT NUMBER: 9735295

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: W1 Non-intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) N/A

Vehicle #1

Direction: West
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 11/12/2003

HOUR 8 AM

REPORT NUMBER: 9731342

Location

Route: MD 191 Mile: 4.84 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Skidding
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Automobile
Movement: Stopping in Traffic Lane
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Following too closely
- 2) What is Code 00?

DATE: 12/8/2003

HOUR 8 AM

REPORT NUMBER: 9988048

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 2 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
Type: Pickup Truck
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 1/15/2004

HOUR 9 PM

REPORT NUMBER: 9746204

Location

Route: MD 191 Mile: 4.79 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / N Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 2/3/2004 HOUR 6 PM

REPORT NUMBER: 9987780

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.84	County: 15 Lane: W1	Municipality: Intersection-related
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 3 Rear-End	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: West Type: Station Wagon Movement: Slowing / Stopping Dvr Cond: Apparently normal	Vehicle #2	Direction: West Type: Automobile Movement: Slowing / Stopping Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Wet Rd Condition: No defects	Light: Dark / Li Road Character: Straight and grade	Traffic Signal: N
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 2/28/2004 HOUR 4 PM

REPORT NUMBER: 9738235

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: S2	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 2 Left Turn into Opposing Traffic	Harmful Events: 1) Other Vehicle 2) Fixed Object		
Vehicle #1	Direction: North Type: Automobile Movement: Making Left Turn Dvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Automobile Movement: Moving at Constant Speed Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Curve and grade	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 3/24/2004 HOUR 8 AM

REPORT NUMBER: 9241569

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: S1	Municipality: Intersection
Severity	Disabled Vehicles Involved: 3	Occupants Killed: 0 Occupants Injured: 1	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 3 Rear-End	Harmful Events: 1) Other Vehicle 2) Other Vehicle		
Vehicle #1	Direction: South Type: Automobile Movement: Starting from Traffic Lane Dvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Automobile Movement: Stopping in Traffic Lane Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 4/27/2004 HOUR 4 PM REPORT NUMBER: 41490

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: S3	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 1 Head-On	Harmful Events: 1) Other Vehicle 2) Unknown		
Vehicle #1	Direction: North Type: Unknown Movement: Moving at Constant Speed Drvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Automobile Movement: Moving at Constant Speed Drvr Cond: Apparently normal	
Conditions:	Weather: Raining Spd Lmt: 30	Surface: Wet Rd Condition: No defects	Light: Daylight Road Character: Straight and grade	Traffic Signal: Y
Causes:	1) Failed to yield right-of-way 2) What is Code 00?			

DATE: 4/28/2004 HOUR 3 PM REPORT NUMBER: 41491

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: S3	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 4 Rear-End into Right Turning Vehicle	Harmful Events: 1) Other Vehicle 2) Unknown		
Vehicle #1	Direction: South Type: Station Wagon Movement: Slowing / Stopping Drvr Cond: Apparently normal	Vehicle #2	Direction: East Type: Pickup Truck Movement: Making Right Turn Drvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Wet Rd Condition: No defects	Light: Daylight Road Character: Straight and grade	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) Failed to give full time/attention			

DATE: 6/22/2004 HOUR 5 PM REPORT NUMBER: 9762369

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: S1	Municipality: Intersection
Severity	Not injured Vehicles Involved: 1	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 17 Single Vehicle	Harmful Events: 1) Overturn 2) Spilled Cargo		
Vehicle #1	Direction: West Type: Single Truck 2 Axles Movement: Making Left Turn Drvr Cond: Apparently normal	Vehicle #2	Direction: N/A Type: N/A Movement: N/A Drvr Cond: N/A	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) 2) What is Code 00?			

DATE: 10/6/2004 HOUR 4 PM REPORT NUMBER: 41473

Location Route: MD 191 Mile: 4.92 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events Collision Type: 2 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1	Direction: West	Vehicle #2	Direction:: East
Type: Recreational Vehicle		Type: Automobile	
Movement: Making Left Turn		Movement: Moving at Constant Speed	
Drvr Cond: Apparently normal		Drvr Cond: Apparently normal	

Conditions: Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes: 1) Failed to yield right-of-way
2) What is Code 00?

DATE: 1/7/2005 HOUR 5 PM REPORT NUMBER: 0510269803

Location Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: E2 Intersection

Severity Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Fixed Object

Vehicle #1	Direction: East	Vehicle #2	Direction:: West
Type: Single Truck 2 Axles		Type: Automobile	
Movement: Making Left Turn		Movement: Moving at Constant Speed	
Drvr Cond: Apparently normal		Drvr Cond: Apparently normal	

Conditions: Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and hillcre

Causes: 1) Failed to yield right-of-way
2) What is Code 00?

DATE: 1/11/2005 HOUR 1 PM REPORT NUMBER: 0510269704

Location Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 2 Pedestrians Injured: 0

Events Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1	Direction: North	Vehicle #2	Direction:: South
Type: Automobile		Type: Van	
Movement: Accelerating		Movement: Making Left Turn	
Drvr Cond: Apparently normal		Drvr Cond: Apparently normal	

Conditions: Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Curve and hillcrest

Causes: 1) Failed to give full time/attention
2) What is Code 00?

DATE: 1/12/2005

HOUR 12 Noon

REPORT NUMBER: 0510270238

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: E1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Fixed Object

Vehicle #1

Direction: East
Type: Recreational Vehicle
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: West
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 1/13/2005

HOUR 11 AM

REPORT NUMBER: 0509988401

Location

Route: MD 191 Mile: 5.48 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Vehicles Involved: 4 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 3 Pedestrians Injured: 0

Events

Collision Type: 06 Harmful Events: 1) Other Vehicle
Sideswipe Opposing Vehicle 2) Other Vehicle

Vehicle #1

Direction: North
Type: School Bus
Movement: Skidding
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Pickup Truck
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 1/31/2005

HOUR 3 PM

REPORT NUMBER: 0510039782

Location

Route: MD 191 Mile: 5.46 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection-related

Severity

Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Fixed Object

Vehicle #1

Direction: N/A
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: N/A
Movement: N/A
Dvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Vision Obstructed
- 2) What is Code 00?

DATE: 4/23/2005

HOUR 4 PM

REPORT NUMBER: 0510543353

Location

Route: MD 191 Mile: 4.89 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type: Recreational Vehicle
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 5/24/2005

HOUR 3 PM

REPORT NUMBER: 0510119188

Location

Route: MD 191 Mile: 5.08 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Vehicles Involved: 3 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: South
Type: Recreational Vehicle
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Recreational Vehicle
Movement: Stopping in Traffic Lane
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 7/8/2005

HOUR 3 PM

REPORT NUMBER: 0510039811

Location

Route: MD 191 Mile: 4.92 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 7/20/2005

HOUR 4 AM

REPORT NUMBER: 0510626652

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Other Object

Vehicle #1

Direction: N/A
Type: Automobile
Movement: Unknown
Drvr Cond: Had been drinking

Vehicle #2

Direction: South
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 10/2/2005

HOUR 12 MN

REPORT NUMBER: 0510128429

Location

Route: MD 191 Mile: 4.84 County: 15 Municipality:
Name: BRADLEY BLVD Lane: U9 Intersection

Severity

Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Other Object

Vehicle #1

Direction: N/A
Type: Automobile
Movement: Making Right Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 10/30/2005

HOUR 10 AM

REPORT NUMBER: 0510540664

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Fixed Object

Vehicle #1

Direction: South
Type: Recreational Vehicle
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Recreational Vehicle
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/8/2005 HOUR 8 PM

REPORT NUMBER: 0510543292

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
Type: Station Wagon
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 11/23/2005 HOUR 10 AM

REPORT NUMBER: 0510543730

Location

Route: MD 191 Mile: 5.08 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Recreational Vehicle
Movement: Stopping in Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 1/29/2006 HOUR 2 PM

REPORT NUMBER: 10688001

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection-related

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type: Automobile
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Stopping in Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Too fast for conditions
- 2) What is Code 00?

DATE: 3/27/2006

HOUR 7 PM

REPORT NUMBER: 10689794

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 1

Events

Collision Type: 17 Harmful Events: 1) Pedestrian
Single Vehicle 2) Unknown

Vehicle #1

Direction: West
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) What is Code 00?
- 2) What is Code 00?

DATE: 3/28/2006

HOUR 6 PM

REPORT NUMBER: 10689829

Location

Route: MD 191 Mile: 5.09 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Non-intersection

Severity

Possible Injury
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 88 Harmful Events: 1) What is Code 20?
Other 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Making U-Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type:
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 4/14/2006

HOUR 12 Noon

REPORT NUMBER: 10690369

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Not injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
Type:
Movement: Making Left Turn
Drvr Cond: Unknown

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 4/16/2006

HOUR 5 PM

REPORT NUMBER: 10690421

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction:: South
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 4/24/2006

HOUR 6 PM

REPORT NUMBER: 10690713

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 14 Harmful Events: 1) Other Vehicle
2) N/A

Vehicle #1

Direction: West
Type:
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction:: North
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 6/1/2006

HOUR 9 PM

REPORT NUMBER: 10691932

Location

Route: MD 191 Mile: 5.06 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection-related

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Other Non-Collision
Single Vehicle 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction:: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1)
- 2) What is Code 00?

DATE: 6/20/2006

HOUR 1 PM

REPORT NUMBER: 10692511

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S2 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 13 Harmful Events: 1) Other Vehicle
Turning Left into Opposing Traffic 2) Other Vehicle

Vehicle #1

Direction: West
Type: Single Truck 3 Axles
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 7/6/2006

HOUR 5 PM

REPORT NUMBER: 10692989

Location

Route: MD 191 Mile: 5.05 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type: Station Wagon
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type:
Movement: Stopping in Traffic Lane
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dawn / D Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Following too closely
- 2) What is Code 00?

DATE: 7/14/2006

HOUR 2 PM

REPORT NUMBER: 10693214

Location

Route: MD 191 Mile: 4.84 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 01 Harmful Events: 1) Other Vehicle
Head-On 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently asleep

Vehicle #2

Direction: North
Type:
Movement: Stopping in Traffic Lane
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Fell asleep / Fainted, etc.
- 2) What is Code 00?

DATE: 8/1/2006 HOUR 7 AM

REPORT NUMBER: 10693771

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 1

Events

Collision Type: 17 Harmful Events: 1) Bicycle
Single Vehicle 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction:: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) What is Code 00?
- 2) What is Code 00?

DATE: 8/30/2006 HOUR 9 PM

REPORT NUMBER: 10694639

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Possible Injury
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: South
Type:
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction:: South
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/7/2006 HOUR 6 PM

REPORT NUMBER: 10694923

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N2 Intersection

Severity

Injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 1

Events

Collision Type: 17 Harmful Events: 1) Bicycle
Single Vehicle 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction:: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/18/2006

HOUR 9 AM

REPORT NUMBER: 10695251

Location

Route: MD 191 Mile: 5.24 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Non-intersection

Severity

Injured
Vehicles Involved: 3 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Other Vehicle

Vehicle #1

Direction: South
Type: Automobile
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Slowing / Stopping
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to give full time/attention
- 2) Failed to give full time/attention

DATE: 11/8/2006

HOUR 3 AM

REPORT NUMBER: 10127795

Location

Route: MD 191 Mile: 5.37 County: 15 Municipality:
Name: BRADLEY BLVD Lane: U9 Non-intersection

Severity

Not injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Dvr Cond: N/A

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 11/8/2006

HOUR 6 AM

REPORT NUMBER: 10697067

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dawn / D Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/17/2006

HOUR 2 PM

REPORT NUMBER: 10697475

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: W3 Intersection

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 4 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) Fixed Object

Vehicle #1

Direction: West
Type: Station Wagon
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Pickup Truck
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 45 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 11/17/2006

HOUR 6 AM

REPORT NUMBER: 10697528

Location

Route: MD 191 Mile: 5.37 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 3 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type:
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Station Wagon
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Following too closely
- 2) What is Code 00?

DATE: 7/27/2007

HOUR 10 AM

REPORT NUMBER: 10708329

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection-related

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and grade

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/25/2007

HOUR 10 PM

REPORT NUMBER: 10710153

Location

Route: MD 191 Mile: 4.92 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 88 Harmful Events: 1) Fixed Object
Other 2) Fixed Object

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: Automobile
Movement: Parked
Dvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 25 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 12/18/2007

HOUR 1 PM

REPORT NUMBER: 10712968

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Not injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 7/24/2007

HOUR 4 PM

REPORT NUMBER: 10708248

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: ER Intersection

Severity

Not injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type: Van
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Motorcycle
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 12/19/2007

HOUR 5 PM

REPORT NUMBER: 10712979

Location

Route: MD 191 Mile: 5.39 County: 15 Municipality:
Name: BRADLEY BLVD Lane: NS Intersection

Severity

Injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 1

Events

Collision Type: 17 Harmful Events: 1) Bicycle
Single Vehicle 2) N/A

Vehicle #1

Direction: West
Type: Automobile
Movement: Unknown
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / N Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) What is Code 00?
- 2) What is Code 00?

DATE: 2/16/2007

HOUR 6 PM

REPORT NUMBER: 10700467

Location

Route: MD 191 Mile: 5.01 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Not injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1

Direction: East
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: West
Type:
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 6/13/2007

HOUR 11 AM

REPORT NUMBER: 10707205

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Accelerating
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 6/7/2007 HOUR 6 AM REPORT NUMBER: 10706868

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: N1	Municipality: Intersection
Severity	Possible Injury Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 1	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 02 Left Turn into Opposing Traffic	Harmful Events: 1) Other Vehicle 2) Fixed Object		
Vehicle #1	Direction: North Type: Automobile Movement: Moving at Constant Speed Dvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Automobile Movement: Making Left Turn Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Curve and grade	Traffic Signal: Y
Causes:	1) Failed to obey traffic signal 2) What is Code 00?			

DATE: 12/17/2007 HOUR 2 PM REPORT NUMBER: 10712933

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.78	County: 15 Lane: N1	Municipality: Intersection-related
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 03 Rear-End	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: North Type: Single Truck 2 Axles Movement: Starting from Traffic Lane Dvr Cond: Apparently normal	Vehicle #2	Direction: North Type: Station Wagon Movement: Stopping in Traffic Lane Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 1/4/2003 HOUR 3 AM REPORT NUMBER: 9721027

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.86	County: 15 Lane: S1	Municipality: Non-intersection
Severity	Not injured Vehicles Involved: 1	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 17 Single Vehicle	Harmful Events: 1) Fixed Object 2) Other Object		
Vehicle #1	Direction: Unknown Type: Automobile Movement: Unknown Dvr Cond: Unknown	Vehicle #2	Direction: N/A Type: N/A Movement: N/A Dvr Cond: N/A	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Wet Rd Condition: No defects	Light: Dark / Li Road Character: Curve and level	Traffic Signal: N
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Bradley Blvd and Wilson Lane (2003-7)

Total Accidents: 19

Vehicle Occupants

Injured: 12	Injured: 1
Killed: 0	Killed: 0

Pedestrians

Harmful Events (Top 2)

Other Vehicle	17
Fixed Object	1
Pedestrian	1

Accident Severity

Not injured	7
Possible Injury	5
Injured	2
Disabled	3
Fatal	0

Intersection Related

Non-intersection	0
Intersection	14
Intersection-related	4
Driveway-Access	1
Non-intersection	0
Intersection	0
Intersection-related	0
Driveway-Access	0
Other	0
Unknown	0

Contributing Circumstances (Top 2)

Failed to give full time/attention	6
Failed to obey traffic signal	4

Time Of Day

6:00 a.m. - 10:00 a.m.: 1	10:00 a.m. - 4:00 p.m.: 9	4:00 p.m. - 8:00 p.m.: 5	8:00 p.m. - 6:00 a.m.: 3
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Weather

N/A	0
Clear / Cloudy	15
Foggy	0
Raining	4
Snow / Sleet	0
Severe winds	0
Other	0
Unknown	0

Road Surface

N/A	0
Wet	6
Dry	13
Snow	0
Ice	0
Mud	0
Other	0
Unknown	0

Illumination

N/A	0
Daylight	14
Dawn / Dusk	1
Dark / Lights on	4
Dark / No Lights	0
Other	0
Unknown	0

Collision Type

DATE: 3/7/2003 HOUR 1 PM REPORT NUMBER: 9731614

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: W1	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 11 Right Angle Collision	Harmful Events: 1) Other Vehicle 2) Unknown		
Vehicle #1	Direction: North Type: Automobile Movement: Starting from Traffic Lane Dvr Cond: Apparently normal	Vehicle #2	Direction: West Type: Van Movement: Moving at Constant Speed Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) Failed to give full time/attention			

DATE: 7/30/2003 HOUR 2 PM REPORT NUMBER: 9768296

Location	Route: MD 188 Name: WILSON LA	Mile: 2.34	County: 15 Lane: N1	Municipality: Intersection
Severity	Disabled Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 1	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 11 Right Angle Collision	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: East Type: Van Movement: Moving at Constant Speed Dvr Cond: Apparently normal	Vehicle #2	Direction: North Type: Van Movement: Moving at Constant Speed Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 8/27/2003 HOUR 9 PM REPORT NUMBER: 9731634

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.72	County: 15 Lane: S1	Municipality: Intersection-related
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 3 Rear-End	Harmful Events: 1) Other Vehicle 2) Fixed Object		
Vehicle #1	Direction: South Type: Automobile Movement: Slowing / Stopping Dvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Recreational Vehicle Movement: Slowing / Stopping Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Wet Rd Condition: No defects	Light: Dark / Li Road Character: Straight and grade	Traffic Signal: Y
Causes:	1) Following too closely 2) What is Code 00?			

DATE: 9/19/2003

HOUR 5 PM

REPORT NUMBER: 9241808

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
Name: WILSON LA Lane: E1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Automobile
Movement: Starting from Traffic Lane
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Automobile
Movement: Starting from Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Wet Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) Failed to give full time/attention

DATE: 3/24/2004

HOUR 8 AM

REPORT NUMBER: 9241569

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 3 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
Rear-End 2) Other Vehicle

Vehicle #1

Direction: South
Type: Automobile
Movement: Starting from Traffic Lane
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Stopping in Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/14/2004

HOUR 1 PM

REPORT NUMBER: 9714638

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
Name: WILSON LA Lane: W1 Intersection-related

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 14 Harmful Events: 1) Other Vehicle
2) Unknown

Vehicle #1

Direction: South
Type: Van
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: West
Type: Recreational Vehicle
Movement: Stopping in Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 11/18/2004

HOUR 1 PM

REPORT NUMBER:

9240779

Location**Route:** MD 188
Name: WILSON LA**Mile:** 2.34**County:** 15
Lane: E1**Municipality:**
Intersection**Severity****Possible Injury****Vehicles Involved:** 2**Occupants Killed:** 0**Occupants Injured:** 2**Pedestrians Killed:** 0**Pedestrians Injured:** 0**Events****Collision Type:** 11
Right Angle Collision**Harmful Events:** 1) Other Vehicle
2) Fixed Object**Vehicle #1****Direction:** East
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal**Vehicle #2****Direction:** North
Type: Recreational Vehicle
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal**Conditions:****Weather:** Clear / Cloudy
Spd Lmt: 30**Surface:** Dry
Rd Condition: No defects**Light:** Daylight
Traffic Signal: Y
Road Character: Straight and level**Causes:**

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 10/30/2005

HOUR 10 AM

REPORT NUMBER: 0510540664

Location**Route:** MD 191
Name: BRADLEY BLVD**Mile:** 4.71**County:** 15
Lane: S1**Municipality:**
Intersection**Severity****Vehicles Involved:** 2**Occupants Killed:** 0**Occupants Injured:** 2**Pedestrians Killed:** 0**Pedestrians Injured:** 0**Events****Collision Type:** 02
Left Turn into Opposing Traffic**Harmful Events:** 1) Other Vehicle
2) Fixed Object**Vehicle #1****Direction:** South
Type: Recreational Vehicle
Movement: Making Left Turn
Drvr Cond: Apparently normal**Vehicle #2****Direction:** North
Type: Recreational Vehicle
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal**Conditions:****Weather:** Clear / Cloudy
Spd Lmt:**Surface:** Dry
Rd Condition: No defects**Light:** Daylight
Traffic Signal: Y
Road Character: Straight and level**Causes:**

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/8/2005

HOUR 8 PM

REPORT NUMBER: 0510543292

Location**Route:** MD 191
Name: BRADLEY BLVD**Mile:** 4.71**County:** 15
Lane: N1**Municipality:**
Intersection**Severity****Vehicles Involved:** 2**Occupants Killed:** 0**Occupants Injured:** 0**Pedestrians Killed:** 0**Pedestrians Injured:** 0**Events****Collision Type:** 02
Left Turn into Opposing Traffic**Harmful Events:** 1) Other Vehicle
2) N/A**Vehicle #1****Direction:** North
Type: Station Wagon
Movement: Making Left Turn
Drvr Cond: Apparently normal**Vehicle #2****Direction:** South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal**Conditions:****Weather:** Raining
Spd Lmt:**Surface:** Wet
Rd Condition: No defects**Light:** Dark / Li
Traffic Signal: Y
Road Character: Straight and level**Causes:**

- 1) Improper turn
- 2) What is Code 00?

DATE: 1/29/2006 HOUR 2 PM

REPORT NUMBER: 10688001

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: N1	Municipality: Intersection-related
Severity	Possible Injury Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 1	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 03 Rear-End	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: North Type: Automobile Movement: Slowing / Stopping Dvr Cond: Apparently normal	Vehicle #2	Direction: North Type: Movement: Stopping in Traffic Lane Dvr Cond: Apparently normal	
Conditions:	Weather: Raining Spd Lmt: 35	Surface: Wet Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Too fast for conditions 2) What is Code 00?			

DATE: 3/27/2006 HOUR 7 PM

REPORT NUMBER: 10689794

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: N1	Municipality: Intersection
Severity	Injured Vehicles Involved: 1	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 1	
Events	Collision Type: 17 Single Vehicle	Harmful Events: 1) Pedestrian 2) Unknown		
Vehicle #1	Direction: West Type: Automobile Movement: Slowing / Stopping Dvr Cond: Apparently normal	Vehicle #2	Direction: N/A Type: N/A Movement: N/A Dvr Cond: N/A	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Dark / Li Road Character: Straight and level	Traffic Signal: N
Causes:	1) What is Code 00? 2) What is Code 00?			

DATE: 4/14/2006 HOUR 12 Noon

REPORT NUMBER: 10690369

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: S1	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 02 Left Turn into Opposing Traffic	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: North Type: Movement: Making Left Turn Dvr Cond: Unknown	Vehicle #2	Direction: South Type: Automobile Movement: Moving at Constant Speed Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to yield right-of-way 2) What is Code 00?			

DATE: 4/16/2006 HOUR 5 PM REPORT NUMBER: 10690421

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: S1	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 11 Right Angle Collision	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: East Type: Automobile Movement: Moving at Constant Speed Drvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Van Movement: Moving at Constant Speed Drvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to obey traffic signal 2) What is Code 00?			

DATE: 7/28/2006 HOUR 6 PM REPORT NUMBER: 10693745

Location	Route: MD 188 Name: WILSON LA	Mile: 2.33	County: 15 Lane: E1	Municipality: Intersection-related
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 03 Rear-End	Harmful Events: 1) Other Vehicle 2) Unknown		
Vehicle #1	Direction: East Type: Automobile Movement: Moving at Constant Speed Drvr Cond: Had been drinking	Vehicle #2	Direction: East Type: Station Wagon Movement: Stopping in Traffic Lane Drvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: N
Causes:	1) Under influence of alcohol 2) What is Code 00?			

DATE: 8/30/2006 HOUR 9 PM REPORT NUMBER: 10694639

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: N1	Municipality: Intersection
Severity	Possible Injury Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 1	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 03 Rear-End	Harmful Events: 1) Other Vehicle 2) Unknown		
Vehicle #1	Direction: South Type: Automobile Movement: Slowing / Stopping Drvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Automobile Movement: Slowing / Stopping Drvr Cond: Apparently normal	
Conditions:	Weather: Raining Spd Lmt: 30	Surface: Wet Rd Condition: No defects	Light: Dark / Li Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 11/8/2006

HOUR 6 AM

REPORT NUMBER: 10697067

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dawn / D Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/17/2006

HOUR 2 PM

REPORT NUMBER: 10697475

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: W3 Intersection

Severity

Possible Injury
Vehicles Involved: 4 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) Fixed Object

Vehicle #1

Direction: West
Type: Station Wagon
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Pickup Truck
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 45 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 7/23/2007

HOUR 7 PM

REPORT NUMBER: 10708252

Location

Route: MD 191 Mile: 4.7 County: 15 Municipality:
Name: BRADLEY BLVD Lane: NO Driveway-Access

Severity

Not injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) N/A

Vehicle #1

Direction: North
Type:
Movement: Moving at Constant Speed
Dvr Cond: Had been drinking

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Dvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Under influence of alcohol
- 2) What is Code 00?

DATE: 6/13/2007

HOUR 11 AM

REPORT NUMBER: 10707205

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Accelerating
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 1 of 2

DATE: 7/30/2003

HOUR 2 PM

REPORT NUMBER: 9768298

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
 Name: WILSON LA Lane: N1 Intersection

Severity

Disabled
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) N/A

Vehicle #1

Direction: East
 Type: Van
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Vehicle #2

Direction: North
 Type: Van
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/19/2003

HOUR 5 PM

REPORT NUMBER: 9241808

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
 Name: WILSON LA Lane: E1 Intersection

Severity

Not Injured
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) N/A

Vehicle #1

Direction: East
 Type: Automobile
 Movement: Starting from Traffic Lane
 Dvr Cond: Apparently normal

Vehicle #2

Direction: North
 Type: Automobile
 Movement: Starting from Traffic Lane
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Wet Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) Failed to give full time/attention

DATE: 9/14/2004

HOUR 1 PM

REPORT NUMBER: 9714638

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
 Name: WILSON LA Lane: W1 Intersection-related

Severity

Possible Injury
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 14 Harmful Events: 1) Other Vehicle
 2) Unknown

Vehicle #1

Direction: South
 Type: Van
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2

Direction: West
 Type: Recreational Vehicle
 Movement: Stopping in Traffic Lane
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Goldsboro Rd and Bradley Blvd (2003-07)

Total Accidents: 2

Vehicle Occupants

Injured: 3	Injured: 0
Killed: 0	Killed: 0

Pedestrians

Harmful Events (Top 2)

Fixed Object	1
Other Vehicle	1

Accident Severity

Not injured	0
Possible Injury	0
Injured	0
Disabled	0
Fatal	0

Intersection Related

Non-intersection	1
Intersection	0
Intersection-related	1
Driveway-Access	0
Non-intersection	0
Intersection	0
Intersection-related	0
Driveway-Access	0
Other	0
Unknown	0

Contributing Circumstances (Top 2)

Severe crosswinds	1
Failed to give full time/attention	1

Time Of Day

6:00 a.m. - 10:00 a.m.: 0	10:00 a.m. - 4:00 p.m.: 1	4:00 p.m. - 8:00 p.m.: 0	8:00 p.m. - 6:00 a.m.: 1
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Weather

N/A	0
Clear / Cloudy	1
Foggy	0
Raining	0
Snow / Sleet	1
Severe winds	0
Other	0
Unknown	0

Road Surface

N/A	0
Wet	1
Dry	0
Snow	1
Ice	0
Mud	0
Other	0
Unknown	0

Illumination

N/A	0
Daylight	1
Dawn / Dusk	0
Dark / Lights on	1
Dark / No Lights	0
Other	0
Unknown	0

Collision Type

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 1 of 1

DATE: 1/19/2005

HOUR 1 PM

REPORT NUMBER: 0509241566

Location

Route: MD 614 Mile: 1.98 County: 15 Municipality:
 Name: GOLDSBORO RD Lane: W1 Non-intersection

Severity

Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 3 Pedestrians Injured: 0

Events

Collision Type: 01 Harmful Events: 1) Other Vehicle
 Head-On 2) N/A

Vehicle #1

Direction: West
 Type: Van
 Movement: Skidding
 Dvr Cond: Apparently normal

Vehicle #2

Direction: East
 Type: Van
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions

Weather: Snow / Sleet Surface: Snow Light: Daylight Traffic Signal: N
 Spd Lmt: Rd Condition: No defects Road Character: Curve and grade

Causes:

- 1) Severe crosswinds
- 2) Severe crosswinds

DATE: 6/4/2005

HOUR 2 AM

REPORT NUMBER: 0509735028

Location

Route: MD 614 Mile: 1.98 County: 15 Municipality:
 Name: GOLDSBORO RD Lane: S1 Intersection-related

Severity

Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
 Single Vehicle 2) Fixed Object

Vehicle #1

Direction: N/A
 Type: Recreational Vehicle
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2

Direction: West
 Type: N/A
 Movement: N/A
 Dvr Cond: N/A

Conditions

Weather: Clear / Cloudy Surface: Wet Light: Dark / LI Traffic Signal: Y
 Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section**AIMS Accident Report Extract****Bradley Blvd and Wilson Lane****Total Accidents: 14****Vehicle Occupants**

Injured: 8	Injured: 1
Killed: 0	Killed: 0

Pedestrians**Harmful Events (Top 2)**

Other Vehicle	12
Fixed Object	1
Pedestrian	1

Accident Severity

Not injured	5
Possible Injury	3
Injured	2
Disabled	2
Fatal	0

Intersection Related

Non-intersection	0
Intersection	11
Intersection-related	2
Driveway-Access	1
Non-intersection	0
Intersection	0
Intersection-related	0
Driveway-Access	0
Other	0
Unknown	0

Contributing Circumstances (Top 2)

Failed to obey traffic signal	3
Failed to give full time/attention	3
Failed to yield right-of-way	3

Time Of Day

6:00 a.m. - 10:00 a.m.: 1	10:00 a.m. - 4:00 p.m.: 6	4:00 p.m. - 8:00 p.m.: 3	8:00 p.m. - 6:00 a.m.: 3
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Weather

N/A	0
Clear / Cloudy	10
Foggy	0
Raining	4
Snow / Sleet	0
Severe winds	0
Other	0
Unknown	0

Road Surface

N/A	0
Wet	5
Dry	9
Snow	0
Ice	0
Mud	0
Other	0
Unknown	0

Illumination

N/A	0
Daylight	9
Dawn / Dusk	1
Dark / Lights on	4
Dark / No Lights	0
Other	0
Unknown	0

Collision Type

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 1 of 5

DATE: 3/7/2003 HOUR 1 PM

REPORT NUMBER: 9731614

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: W1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) Unknown

Vehicle #1

Direction: North
 Type: Automobile
 Movement: Starting from Traffic Lane
 Dvr Cond: Apparently normal

Vehicle #2

Direction: West
 Type: Van
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) Failed to give full time/attention

DATE: 8/27/2003 HOUR 9 PM

REPORT NUMBER: 9731634

Location

Route: MD 191 Mile: 4.72 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection-related

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
 Rear-End 2) Fixed Object

Vehicle #1

Direction: South
 Type: Automobile
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Vehicle #2

Direction: South
 Type: Recreational Vehicle
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Wet Light: Dark / Li Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes

- 1) Following too closely
- 2) What is Code 00?

DATE: 3/24/2004 HOUR 8 AM

REPORT NUMBER: 9241569

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 3 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
 Rear-End 2) Other Vehicle

Vehicle #1

Direction: South
 Type: Automobile
 Movement: Starting from Traffic Lane
 Dvr Cond: Apparently normal

Vehicle #2

Direction: South
 Type: Automobile
 Movement: Stopping in Traffic Lane
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 2 of 5

DATE: 10/30/2005

HOUR 10 AM

REPORT NUMBER: 0510540664

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
 Left Turn Into Opposing Traffic 2) Fixed Object

Vehicle #1

Direction: South
 Type: Recreational Vehicle
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2

Direction: North
 Type: Recreational Vehicle
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What Is Code 00?

DATE: 11/8/2005

HOUR 8 PM

REPORT NUMBER: 0510543292

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
 Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
 Type: Station Wagon
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2

Direction: South
 Type: Automobile
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
 Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 1/29/2006

HOUR 2 PM

REPORT NUMBER: 10688001

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: N1 Intersection-related

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
 Rear-End 2) N/A

Vehicle #1

Direction: North
 Type: Automobile
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Vehicle #2

Direction: North
 Type: Stopping in Traffic Lane
 Movement: Stopping in Traffic Lane
 Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Too fast for conditions
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 3 of 5

DATE: 3/27/2006

HOUR 7 PM

REPORT NUMBER: 10669794

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: N1 Intersection

Severity:

Injured
 Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 0 Pedestrians Injured: 1

Events:

Collision Type: 17 Harmful Events: 1) Pedestrian
 Single Vehicle 2) Unknown

Vehicle #1:

Direction: West
 Type: Automobile
 Movement: Slowing / Stopping
 Drvr Cond: Apparently normal

Vehicle #2:

Direction: N/A
 Type: N/A
 Movement: N/A
 Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / LI Traffic Signal: N
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) What is Code 00?
- 2) What is Code 00?

DATE: 4/14/2006

HOUR 12 Noon

REPORT NUMBER: 10690369

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity:

Not injured
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 0 Pedestrians Injured: 0

Events:

Collision Type: 02 Harmful Events: 1) Other Vehicle
 Left Turn Into Opposing Traffic 2) N/A

Vehicle #1:

Direction: North
 Type:
 Movement: Making Left Turn
 Drvr Cond: Unknown

Vehicle #2:

Direction: South
 Type: Automobile
 Movement: Moving at Constant Speed
 Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 4/16/2006

HOUR 5 PM

REPORT NUMBER: 10690421

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity:

Not injured
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 0 Pedestrians Injured: 0

Events:

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) N/A

Vehicle #1:

Direction: East
 Type: Automobile
 Movement: Moving at Constant Speed
 Drvr Cond: Apparently normal

Vehicle #2:

Direction: South
 Type: Van
 Movement: Moving at Constant Speed
 Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 4 of 5

DATE: 8/30/2006

HOUR 9 PM

REPORT NUMBER: 10694639

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: N1 Intersection

Severity:

Possible Injury
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events:

Collision Type: 03 Harmful Events: 1) Other Vehicle
 Rear-End 2) Unknown

Vehicle #1:

Direction: South
 Type:
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Vehicle #2:

Direction: South
 Type: Automobile
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 11/8/2006

HOUR 6 AM

REPORT NUMBER: 10697067

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity:

Injured
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events:

Collision Type: 02 Harmful Events: 1) Other Vehicle
 Left Turn into Opposing Traffic 2) Unknown

Vehicle #1:

Direction: North
 Type: Automobile
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2:

Direction: South
 Type: Automobile
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dawn / D Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/17/2006

HOUR 2 PM

REPORT NUMBER: 10697475

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: W3 Intersection

Severity:

Possible Injury
 Vehicles Involved: 4 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events:

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) Fixed Object

Vehicle #1:

Direction: West
 Type: Station Wagon
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Vehicle #2:

Direction: North
 Type: Pickup Truck
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 45 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 5 of 5

DATE: 7/23/2007

HOUR 7 PM

REPORT NUMBER: 10708252

Location

Route: MD 191 Mile: 4.7 County: 15 Municipality:
Name: BRADLEY BLVD Lane: NO Driveway-Access

Severity

Not injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) N/A

Vehicle #1

Direction: North
Type:
Movement: Moving at Constant Speed
Dvr Cond: Had been drinking

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Dvr Cond: N/A

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Under Influence of alcohol
- 2) What is Code 00?

DATE: 6/13/2007

HOUR 11 AM

REPORT NUMBER: 10707205

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Van
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Accelerating
Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes

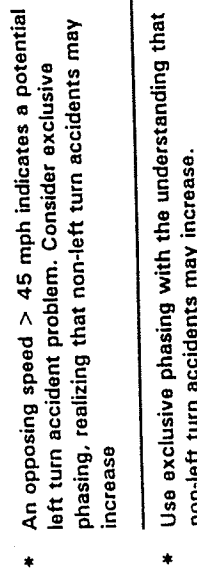
- 1) Failed to obey traffic signal
- 2) What is Code 00?

Traffic Study

APPENDIX G

Left-Turn Phasing

1 FEB 5 1958



F - Exclusive

Note: This procedure applies to locations that have a separate left turn lane.

**< 250 feet when speeds are
35 mph or less;**

**< 400 feet when speeds are
40 mph or more**

DRAFT

5/1/98

FLOWCHART CALCULATION PROCEDURES

- I. Determine the left-turn volume in the hour of the highest left-turn demand and divide by the number of cycles per hour. Determine whether the result is greater than 2.0.
- II. Determine the number of lanes of traffic opposing the left turn movement. These would all be lanes on the opposite approach with through or right-turning vehicles or both.
- III. Multiply the left-turn hourly volume by the hourly volume of the opposing through traffic. Use the same hour as in Step 1. Compare the answer with either 70,000 for one opposing lane, 100,000 for two opposing lanes or 144,000 for three opposing lanes.
- IV. Determine whether the speed on the opposing approach is greater than 45 mph.
- V. Determine whether the sight distance is restricted. Restricted sight distance is < 250 ft. when speeds are 35 mph or less and < 400 ft. when speeds are 40 mph or more.
- VI. Determine whether there is a severe left-turn accident problem that could be corrected by exclusive phasing. The Engineer should thoroughly review accident data and visit the site in question to insure all other countermeasures have been exhausted.

POLICY
TS-11

MEMORANDUM

October 5, 1982

TO: Mr. Ronald C. ~~Wetzel~~, Chief, Division of Traffic Engineering
VIA: W. Scott Wainwright, Assistant Chief, Div. of Traffic Engineering
VIA: John W. Thompson, Chief, Traffic Operations Section
FROM: John C. Rice, Engineer III, Traffic Operations Section
SUBJECT: Traffic Signals General --
Guidelines for Selection of Left Turn Phase Type

Following a considerable period of development and review, we have completed a guideline for the selection of various turning movement traffic flow patterns. The proper usage of traffic control for turning movements will help produce safe and efficient intersections. Discussed are the use of exclusive, permissive, leading, and lagging left turn systems.

Please consider the approval of these proposed guidelines.

JCR:slf
1349A

Approved
10/12/82

GUIDELINES FOR SELECTION OF LEFT TURN PHASE TYPE

October 5, 1982

I. INTRODUCTION

The following are guidelines for determining the applicability of various different types of left turn phasing treatments. The guidelines are for use in designing left turn phases after it has been determined that the phase is justified by warrants such as volumes, accidents, delay, etc.. The guidelines do not cover the warrants for left turn phasing.

II. DEFINITIONS

A. Exclusive left turn phase -- Left turns are allowed only during the protected phase, during the green arrow portion of the cycle.

B. Permissive left turn phase -- Left turns occur during the protected phase (left turn green arrow) AND left turns are permitted during the associated through traffic phase (circular green), if gaps in opposing traffic occur. The turning traffic must yield to opposing traffic. (MSHA refers to this phasing as "Exclusive/Permissive" (E/P)).

1. Leading-to-Permissive -- the protected left turn phase preceeds the opposing through phase.
2. Permissive-to-Lagging -- the protected left turn phase follows the opposing through phase.

C. Lead-Lag -- An exclusive left turn phasing combination, where one direction features a leading left turn, and the opposing direction features a lagging left turn.

D. Left Turn "Trap" -- A phenomenon that occurs at intersections where only one direction has a permissive-lagging left turn phase. Left turns in the direction opposing the lagging left signal see a display of yellow change interval and may mistakenly assume that oncoming traffic also has a yellow interval at the same time. Actually the opposite direction has circular green indications -- thus the "trap" and safety hazard. This is obsolete practice.

III. LEADING vs LAGGING PHASES

This part will consider the use of leading (in contrast to lagging), left turn phases.

A. T-Type (3-leg) Intersection

1. Isolated traffic signals -- lagging phase operation is usually more efficient.

2. Coordinated signal systems -- the use of leading or lagging phases should be determined by the through-band efficiency using the time/space diagram.

3. If lagging phase is selected, note that the "trap" may occur affecting left turns into driveway opposite T, or U-turns. Consider prohibiting opposing left and U-turns, or consider using a leading left turn.

B. Four-way (or more) intersections having only one direction of left turn phase.

1. Leading left turn phase should be used.

2. A lagging left turn phase will create the "trap", and should be used only if opposing "uncontrolled" left and U-turn have been prohibited.

C. Four-way (or more) intersection, having two opposing left turn phases.

1. Isolated traffic signals -- both left turn phases should be leading, for optimum efficiency with actuated controllers.

2. Coordinated signals systems -- the use of leading or lagging left turn phases should be determined by the through-band efficiency using the time/space diagram.

a. Both leading left turn phases.

b. One leading, one lagging (lead-lag phasing) -- If lead-lag is chosen, exclusive phasing must be used (See Part IV).

IV. EXCLUSIVE vs PERMISSIVE PHASING

This part will consider the use of exclusive (in contrast to permissive), left turn phasing.

A. Permissive -- All new or modified left turn phases, should be permissive unless otherwise indicated by factors listed in B below.

1. Existing exclusive left turn phases should be reviewed with intent to convert them to permissive type if feasible.

2. Existing permissive type left turn phases should be reviewed occasionally to determine if a significant accident problem exists that would indicate a need for exclusive left turn phasing.

B. Exclusive -- The factors listed below may indicate a need for exclusive left turn phasing.

1. Sight distance insufficient for left turning vehicles.

2. Unusual geometry (curves, skewed approaches) making it difficult for left turning vehicles to judge opposing speeds and adequate "gaps" in traffic.

3. Double left turning lanes must be of the exclusive type. (At some locations double left turns can be accommodated without special phasing if the opposing traffic is negligible).

4. The use of "lead-lag" phasing at a four-way intersection requires that the leading phase be made exclusive, to avoid the "trap" situation.
5. Very wide medians that may affect sight distance or that cannot be safely crossed may require exclusive left turn phasing.
6. Very high approach speeds of opposing traffic (85th percentile 45 MPH or higher) may require exclusive left turn phasing, particularly in conjunction with 5 above.
7. High volumes of truck traffic may create sight distance problems.
8. A pattern of left turning accidents may indicate a need for exclusive phasing.
9. Lack of sufficient opposing gaps, accompanied by left turning traffic trying to force their way into the stream and being left in the intersection after the yellow and/or all-red clearance intervals.
10. Combinations of the above.

V. SPLIT-PHASING

A. This special case of left turn phasing provides separate signal phases for the movement of opposing traffic. It is a means of increasing intersection capacity, since it permits the use of double left turning lanes.

1. Volumes -- The need for split phasing should be determined by critical lane analysis. Very heavy left turn volumes are required.
2. Accidents -- Split phasing may occasionally be used to resolve an accident problem at locations where high left turning volumes occur and where no off-set left turn bays exist. Split phasing can make up for the lack of sufficient sight distance and storage. This use will increase delays at the intersection, however.

B. Pedestrians

The use of split phasing requires special consideration of pedestrian crossing routes and phases.

JCR/slf

0725A

Traffic Study

APPENDIX H

Turn Bay Storage Computations

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Goldsboro Road

MOVEMENT: Westbound Bradley Boulevard Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

195 feet

LONGEST OBSERVED QUEUE

18 vehicles

	AM	Midday	PM	
CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)	341	0	688	vehicles per hour
CYCLE LENGTH (sec)	100	100	100	seconds
AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$	9.5	0.0	19.1	vehicles/second
MAXIMUM NO. OF VEHICLES PER CYCLE:	15	0	27	vehicles
QUEUE LENGTH (25' per Vehicle)	375	0	675	feet
QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)				feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Goldsboro Road

MOVEMENT: Northbound Goldsboro Road Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

101 feet

LONGEST OBSERVED QUEUE

N/A vehicles

CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)

AM **Midday** **PM** **vehicles per hour**

CYCLE LENGTH (sec)

72 **0** **133** **seconds**

AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$

100 **100** **100** **vehicles/second**

MAXIMUM NO. OF VEHICLES PER CYCLE:

2.0 **0.0** **3.7** **vehicles**

QUEUE LENGTH (25' per Vehicle)

5 **0** **7** **feet**

QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)

125 **0** **175** **feet (with E/P)**

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Wilson Lane

MOVEMENT: Eastbound Bradley Boulevard Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

0 feet

LONGEST OBSERVED QUEUE

N/A vehicles

	AM	Midday	PM	
CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)	36	0	46	vehicles per hour
CYCLE LENGTH (sec)	120	120	120	seconds
AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$	1.2	0.0	1.5	vehicles/second
MAXIMUM NO. OF VEHICLES PER CYCLE:	3	0	4	vehicles
QUEUE LENGTH (25' per Vehicle)	75	0	100	feet
QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)				feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Wilson Lane

MOVEMENT: Westbound Bradley Boulevard Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

0 feet

LONGEST OBSERVED QUEUE

N/A vehicles

CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)

113

0

60

vehicles per hour

CYCLE LENGTH (sec)

120

120

120

seconds

AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$

3.8

0.0

2.0

vehicles/second

MAXIMUM NO. OF VEHICLES PER CYCLE:

7

0

5

vehicles

QUEUE LENGTH (25' per Vehicle)

175

0

125

feet

QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)

feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Wilson Lane

MOVEMENT: Northbound Wilson Lane Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

0 feet

LONGEST OBSERVED QUEUE

N/A vehicles

CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)

16

0

24

vehicles per hour

CYCLE LENGTH (sec)

120

120

120

seconds

AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$

0.5

0.0

0.8

vehicles/second

MAXIMUM NO. OF VEHICLES PER CYCLE:

2

0

2

vehicles

QUEUE LENGTH (25' per Vehicle)

50

0

50

feet

QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)

feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Wilson Lane

MOVEMENT: Southbound Wilson Lane Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

0 feet

LONGEST OBSERVED QUEUE

N/A vehicles

CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)

39

0

25

vehicles per hour

CYCLE LENGTH (sec)

120

120

120

seconds

AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$

1.3

0.0

0.8

vehicles/second

MAXIMUM NO. OF VEHICLES PER CYCLE:

3

0

2

vehicles

QUEUE LENGTH (25' per Vehicle)

75

0

50

feet

QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)

feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Traffic Study

APPENDIX A

Radar Speed Distributions

Radar Speed Study Quantitative Summary

Description:

Route: Bradley Blvd
 Direction: Westbound
 Location: Wilson Lane
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 10:50 - 11:25 AM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 36 mph
 Modal Speed = 31, 33, 35 mph
 Mean Speed = 32.9 mph
 10 mph Pace = 29 - 38 mph
 % in pace = 88%
 % Over Speed Limit = 74%

Vehicle Classification:

Passenger Cars: 98%
 Trucks: 2%
 Buses: 0%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26	1	1	2%	2%
27	2	3	3%	5%
28	2	5	3%	9%
29	5	10	9%	17%
30	5	15	9%	26%
31	7	22	12%	38%
32	5	27	9%	47%
33	7	34	12%	59%
34	5	39	9%	67%
35	7	46	12%	79%
36	4	50	7%	86%
37	2	52	3%	90%
38	4	56	7%	97%
39		56	0%	97%
40	1	57	2%	98%
41		57	0%	98%
42		57	0%	98%
43	1	58	2%	100%
44			0%	100%
45			0%	100%
46			0%	100%
47			0%	100%
48			0%	100%
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				

Radar Speed Study Quantitative Summary

Description:

Route: Bradley Blvd
 Direction: Eastbound
 Location: Wilson Lane
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 10:50 - 11:25 AM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 37 mph
 Modal Speed = 32, 35 mph
 Mean Speed = 33.3 mph
 10 mph Pace = 28 - 37 mph
 % in pace = 85%
 % Over Speed Limit = 78%

Vehicle Classification:

Passenger Cars: 92%
 Trucks: 6%
 Buses: 2%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26	1	1	1%	1%
27	4	5	4%	6%
28	4	9	4%	10%
29	4	13	4%	15%
30	7	20	8%	22%
31	9	29	10%	33%
32	10	39	11%	44%
33	6	45	7%	51%
34	8	53	9%	60%
35	10	63	11%	71%
36	9	72	10%	81%
37	9	81	10%	91%
38	2	83	2%	93%
39	4	87	4%	98%
40	2	89	2%	100%
41			0%	100%
42			0%	100%
43			0%	100%
44			0%	100%
45			0%	100%
46			0%	100%
47			0%	100%
48			0%	100%
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				

Radar Speed Study **Quantitative Summary**

Description:

Route: Bradley Blvd
 Direction: Westbound
 Location: Brite Drive
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 12:25 - 12:55 PM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 37 mph
 Modal Speed = 35 mph
 Mean Speed = 33.8 mph
 10 mph Pace = 29 - 38 mph
 % in pace = 88%
 % Over Speed Limit = 80%

Vehicle Classification:

Passenger Cars: 97%
 Trucks: 3%
 Buses: 0%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26			0%	0%
27	2	2	3%	3%
28	2	4	3%	5%
29	3	7	4%	9%
30	7	14	9%	19%
31	7	21	9%	28%
32	8	29	11%	39%
33	7	36	9%	48%
34	9	45	12%	60%
35	10	55	13%	73%
36	5	60	7%	80%
37	5	65	7%	87%
38	5	70	7%	93%
39	2	72	3%	96%
40	1	73	1%	97%
41		73	0%	97%
42	1	74	1%	99%
43		74	0%	99%
44		74	0%	99%
45		74	0%	99%
46		74	0%	99%
47		74	0%	99%
48		74	0%	99%
49		74	0%	99%
50		74	0%	99%
51		74	0%	99%
52	1	75	1%	100%
53				
54				
55				
56				
57				
58				

Radar Speed Study Quantitative Summary

Description:

Route: Bradley Blvd
 Direction: Eastbound
 Location: Brite Drive
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 12:25 - 12:55 PM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 38 mph
 Modal Speed = 34 mph
 Mean Speed = 34.7 mph
 10 mph Pace = 30 - 39 mph
 % in pace = 82%
 % Over Speed Limit = 84%

Vehicle Classification:

Passenger Cars: 98%
 Trucks: 1%
 Buses: 1%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26	1	1	1%	1%
27	1	2	1%	2%
28	1	3	1%	4%
29	3	6	4%	7%
30	6	12	7%	15%
31	5	17	6%	21%
32	8	25	10%	30%
33	8	33	10%	40%
34	11	44	13%	54%
35	9	53	11%	65%
36	9	62	11%	76%
37	5	67	6%	82%
38	3	70	4%	85%
39	3	73	4%	89%
40	1	74	1%	90%
41	2	76	2%	93%
42	2	78	2%	95%
43		78	0%	95%
44	1	79	1%	96%
45		79	0%	96%
46	1	80	1%	98%
47		80	0%	98%
48	1	81	1%	99%
49	1	82	1%	100%
50				
51				
52				
53				
54				
55				
56				
57				
58				

Radar Speed Study Quantitative Summary

Description:

Route: Bradley Blvd
 Direction: Westbound
 Location: Goldsboro Road
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 11:30 AM - 12:20 PM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 39 mph
 Modal Speed = 35 mph
 Mean Speed = 34.5 mph
 10 mph Pace = 29 - 38 mph
 % in pace = 74%
 % Over Speed Limit = 79%

Vehicle Classification:

Passenger Cars: 97%
 Trucks: 2%
 Buses: 1%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24			0%	0%
25			0%	0%
26			0%	0%
27	2	2	2%	2%
28	4	6	5%	7%
29	5	11	6%	13%
30	6	17	7%	20%
31	7	24	8%	29%
32	7	31	8%	37%
33	7	38	8%	45%
34	8	46	10%	55%
35	10	56	12%	67%
36	4	60	5%	71%
37	3	63	4%	75%
38	5	68	6%	81%
39	4	72	5%	86%
40	3	75	4%	89%
41	1	76	1%	90%
42	3	79	4%	94%
43	2	81	2%	96%
44	1	82	1%	98%
45	1	83	1%	99%
46		83	0%	99%
47		83	0%	99%
48		83	0%	99%
49		83	0%	99%
50		83	0%	99%
51		83	0%	99%
52		83	0%	99%
53	1	84	1%	100%
54				
55				
56				
57				
58				

Radar Speed Study Quantitative Summary

Description:

Route: Bradley Blvd
 Direction: Eastbound
 Location: Goldsboro Road
 County: Montgomery
 Posted Speed Limit: 30 MPH
 Date: 23-Apr-09
 Time: 11:30 AM - 12:20 PM
 Weather: Sunny
 WRA W.O.#: 31681-002
 Recorder(s): RK

Results:

85th %-ile Speed = 34 mph
 Modal Speed = 32 mph
 Mean Speed = 31.0 mph
 10 mph Pace = 26 - 35 mph
 % in pace = 87%
 % Over Speed Limit = 58%

Vehicle Classification:

Passenger Cars: 95%
 Trucks: 5%
 Buses: 0%

Speed (mph)	Number Vehicles	Cumul. Vehicles	% of Total	% Accum.
15				
16				
17				
18				
19				
20			0%	0%
21			0%	0%
22			0%	0%
23			0%	0%
24	1	1	2%	2%
25	2	3	3%	5%
26	2	5	3%	8%
27	5	10	8%	17%
28	4	14	7%	23%
29	5	19	8%	32%
30	6	25	10%	42%
31	7	32	12%	53%
32	11	43	18%	72%
33	5	48	8%	80%
34	3	51	5%	85%
35	4	55	7%	92%
36	1	56	2%	93%
37	2	58	3%	97%
38	1	59	2%	98%
39	1	60	2%	100%
40		60	0%	100%
41		60	0%	100%
42		60	0%	100%
43		60	0%	100%
44		60	0%	100%
45		60	0%	100%
46		60	0%	100%
47		60	0%	100%
48		60	0%	100%
49		60	0%	100%
50				
51				
52				
53				
54				
55				
56				
57				
58				

Traffic Study

APPENDIX B

Queuing Analysis



Whitman, Requardt, and Associates, LLP

QUEUING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Goldsboro Rd.
Montgomery County, Maryland

APPROACH: EB Bradley Blvd. Thrus

TIME: 7:45 - 8:45 AM

E. Hershman

Thursday, April 23, 2009

Clear

31681-002

TIME	CYCLE	Queue at Beginning of Green	Queuing added at Beginning of Green	# Cleared during Green	# Cleared during Yellow/All Red	# Not Cleared
7:45 AM	1	3		3		
	2	6		6		
	3	4		4		
	4	7		7		
	5	8		8		
	6	9		9		
	7	4		4		
	8	8		8		
	9	3		3		
	10	6		6		
	11	8		8		
	12	3		3		
	13	10		10		
	14	4		4		
	15	7		7		
	16	8		8		
	17	5		5		
	18	7		7		
	19	6		6		
	20	7		7		
	21	5		5		
	22	8		8		
	23	5		5		
	24	7		7		
	25	9		9		
	26	6		6		
	27	5		5		
	28	6		6		
	29	5		5		
	30	4		4		

	31	9		9		
	32	8		8		
	33	7		7		
	34	6		6		
	35	6		6		
8:45 AM	36	5		5		
PM Peak Hour Totals	36 cycles	224	0	224	0	0

Longest Queue = 10
Average Queue = 6.2



Whitman, Requardt, and Associates, LLP

QUEUEING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Goldsboro Rd.
Montgomery County, Maryland

APPROACH: WB Bradley Blvd. Lefts

TIME: 7:45 - 8:45 AM

Recorder: E. Hershman

Date: Thursday, April 23, 2009

Weather: Clear

J.O.#/W.O.#: 31681-002

TIME	CYCLE	Queue at Beginning of Green	# Cleared during Green			# Cleared during Yellow/All Red			Total # Cleared	# Not Cleared
			Exclusive Phase	Permissive Phase	Total	Exclusive Phase	Permissive Phase	Total		
7:45 AM	1	1	1		1			0	1	
	2	4	4		4			0	4	
	3	2	2		2			0	2	
	4	5	5		5			0	5	
	5	4	4		4			0	4	
	6	8	7		7	1		1	8	
	7	2	2		2			0	2	
	8	5	5		5			0	5	
	9	1	1		1			0	1	
	10	1	1		1			0	1	
	11	6	6		6			0	6	
	12	5	5		5			0	5	
	13	3	3		3			0	3	
	14	6	6		6			0	6	
	15	10	7		7	3		3	10	
	16	6	6		6			0	6	
	17	12	7	3	10	2		2	12	
	18	12	7		7	2		2	9	3
	19	8	7		7	1		1	8	
	20	7	6		6	1		1	7	
	21	0	0		0			0	0	
	22	4	4		4			0	4	
	23	3	3		3			0	3	
	24	11	8	1	9	2		2	11	
	25	13	8	3	11	2		2	13	
	26	12	7	3	10	2		2	12	
	27	3	3		3			0	3	
	28	6	6		6			0	6	
	29	13	7	1	8	2	1	3	11	
	30	6	6		6			0	6	
	31	4	4		4			0	4	
	32	2	2		2			0	2	

	33	4	4	4		0	4			
	34	13	8	2	10	1	1	11		
	35	11	7		7		0	7		
8:45 AM	36	15	7	5	12	3	3	15		
PM Peak Hour Totals	36 cycles	228	176	18	194	22	1	23	217	3
Average per cycle =		6.3	4.9	0.5	5.4	0.6	0.0	0.6	6.0	0.1

% Lefts Cleared: 81% 8% 89% 10% 1% 11% 100%

Longest Queue = 15 Vehicles
Average Queue = 6.3 Vehicles



Whitman, Requardt, and Associates, LLP

QUEUING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Wilson Lane
Montgomery County, Maryland

APPROACH: EB Bradley Blvd. LTR

TIME: 7:45 - 8:45 AM

R. Klasen

Thursday, April 23, 2009

Clear

31681-002

TIME	CYCLE	Queue at Beginning of Green	Queueing added at Beginning of Green	# Cleared during Green	# Cleared during Yellow/All Red	# Not Cleared
7:45 AM	1	>20		24	0	
	2	4		17	0	
	3	>20		33	2	
	4	>20		30	1	
	5	>20		32	0	
	6	>20		27	2	
	7	>20		26	1	
	8	>20		8	1	
	9	>20		26	1	
	10	>20		23	0	
	11	>20		24	2	
	12	24		28	0	
	13	>20		30	1	
	14	>20		28	1	
	15	>20		26	2	
	16	>20		23	1	
	17	>20		31	2	
	18	19		22	0	
	19	0		31	1	
	20	21		29	1	
	21	11		22	0	
	22	>20		26	1	
	23	>20		34	0	
	24	>20		25	1	
	25	>20		29	0	
	26	17		30	0	
	27	>20		29	2	
	28	>20		30	2	
	29	22		24	2	
8:45 AM	30	>20		32	1	

PM Peak Hour Totals	30 cycles	118	0	799	28	0

Longest Queue = >20

Average Queue = >20



Whitman, Requardt, and Associates, LLP

QUEUING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Goldsboro Rd.
Montgomery County, Maryland
APPROACH: EB Bradley Blvd. Thrus
TIME: 5:30 - 6:30 PM

E. Hershman
Thursday, April 23, 2009
Clear
31681-002

TIME	CYCLE	Queue at Beginning of Green	Queuing added at Beginning of Green	# Cleared during Green	# Cleared during Yellow/All Red	# Not Cleared
5:30 PM	1	6		6		
	2	6		6		
	3	3		3		
	4	2		2		
	5	6		6		
	6	8		8		
	7	6		6		
	8	4		4		
	9	4		4		
	10	3		3		
	11	6		6		
	12	5		5		
	13	4		4		
	14	2		2		
	15	5		5		
	16	7		7		
	17	7		7		
	18	5		5		
	19	3		3		
	20	4		4		
	21	3		3		
	22	2		2		
	23	5		5		
	24	3		3		
	25	5		5		
	26	5		5		
	27	4		4		
	28	3		3		
	29	5		5		
	30	5		5		

	31	5		5		
	32	0		0		
	33	4		4		
	34	2		2		
	35	7		7		
6:30 PM	36	6		6		
PM Peak Hour Totals	36 cycles	160	0	160	0	0

Longest Queue = 8
Average Queue = 4.4



Whitman, Requardt, and Associates, LLP

QUEUEING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Goldsboro Rd.
Montgomery County, Maryland
 APPROACH: WB Bradley Blvd. Lefts
 TIME: 5:30 - 6:30 PM

Recorder: E. Hershman
 Date: Thursday, April 23, 2009
 Weather: Clear
 J.O.#/W.O.#: 31681-002

TIME	CYCLE	Queue at Beginning of Green	# Cleared during Green			# Cleared during Yellow/All Red			Total # Cleared	# Not Cleared
			Exclusive Phase	Permissive Phase	Total	Exclusive Phase	Permissive Phase	Total		
5:30 PM	1	7	7		7			0	7	
	2	4	4		4			0	4	
	3	11	11		11			0	11	
	4	13	13		13			0	13	
	5	14	14		14			0	14	
	6	12	12		12			0	12	
	7	4	4		4			0	4	
	8	3	3		3			0	3	
	9	10	10		10			0	10	
	10	13	13		13			0	13	
	11	12	12		12			0	12	
	12	8	8		8			0	8	
	13	13	13		13			0	13	
	14	8	8		8			0	8	
	15	15	15		15			0	15	
	16	4	4		4			0	4	
	17	3	3		3			0	3	
	18	18	16		16	2		2	18	
	19	12	12		12			0	12	
	20	7	7		7			0	7	
	21	4	4		4			0	4	
	22	9	9		9			0	9	
	23	7	7		7			0	7	
	24	7	7		7			0	7	
	25	12	12		12			0	12	
	26	7	7		7			0	7	
	27	9	9		9			0	9	
	28	8	8		8			0	8	
	29	11	11		11			0	11	
	30	6	6		6			0	6	
	31	7	7		7			0	7	
	32	4	4		4			0	4	

	33	6	6	6		0	6			
	34	10	10	10		0	10			
	35	12	12	12		0	12			
6:30 PM	36	8	8	8		0	8			
PM Peak Hour Totals	36 cycles	318	316	0	316	2	0	2	318	0
Average per cycle =		8.8	8.8	0.0	8.8	0.1	0.0	0.1	8.8	0.0

% Lefts Cleared: 99% 0% 99% 1% 0% 1% 100%

Longest Queue = **18 Vehicles**
Average Queue = **8.8 Vehicles**



Whitman, Requardt, and Associates, LLP

QUEUING ANALYSIS SUMMARY

LOCATION: Bradley Blvd. @ Wilson Lane
Montgomery County, Maryland
 APPROACH: WB Bradley Blvd. LTR
 TIME: 5:30 - 6:30 PM

R. Klasen
 Thursday, April 23, 2009
 Clear
 31681-002

TIME	CYCLE	Queue at Beginning of Green	Queuing added at Beginning of Green	# Cleared during Green	# Cleared during Yellow/All Red	# Not Cleared
5:30 PM	1	>20		29	2	
	2	>20		24	2	
	3	>20		30	1	
	4	>20		17	1	>2
	5	>20		29	0	
	6	>20		22	1	
	7	>20		28	0	
	8	>20		26	2	
	9	>20		23	2	
	10	>20		23	2	
	11	>20		26	2	
	12	>20		32	3	
	13	>20		11	2	>7
	14	>20		30	2	
	15	>20		26	2	
	16	>20		27	2	
	17	>20		31	1	
	18	>20		33	0	
	19	>20		26	2	
	20	>20		30	1	
	21	>20		27	2	
	22	>20		21	3	
	23	>20		33	0	
	24	>20		23	0	
	25	>20		34	0	
	26	>20		31	1	
	27	>20		27	0	
	28	>20		26	2	
	29	>20		24	0	
8:45 AM	30	>20		28	0	

PM Peak Hour Totals	30 cycles	0	0	797	38	0

Longest Queue = >20

Average Queue = >20

Traffic Study

APPENDIX C

Turning Movement Count Volumes

UNCLASSIFIED // FOR OFFICIAL USE ONLY
Whitman, Requardt & Associates, LLP

Location: Bethesda, MD
Intersection: Bradley Blvd / MD614
Date: Tuesday, April 21, 2009
Counter: ET / JT

File Name : EH0421-2
Site Code : 00000000
Start Date : 4/21/2009
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Groups Printed- Cars - Heavy Vehicles - Right Turn On Red

	MD 191 (Bradley Blvd.) From East				MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
06:00 AM	12	11	0	23	19	1	0	20	0	25	0	25	68
06:15 AM	12	18	0	30	44	1	1	46	2	29	0	31	107
06:30 AM	18	33	0	51	47	3	2	52	5	40	0	45	148
06:45 AM	44	37	0	81	64	6	5	75	5	79	0	84	240
Total	86	99	0	185	174	11	8	193	12	173	0	185	563
07:00 AM	44	50	0	94	85	6	2	93	11	112	0	123	310
07:15 AM	59	60	0	119	100	8	2	110	16	151	0	167	396
07:30 AM	79	62	0	141	106	11	1	118	22	229	0	251	510
07:45 AM	137	99	0	236	146	15	3	164	25	246	0	271	671
Total	319	271	0	590	437	40	8	485	74	738	0	812	1887
08:00 AM	101	78	0	179	171	11	3	185	19	238	0	257	621
08:15 AM	92	76	0	168	176	21	4	201	25	221	0	246	615
08:30 AM	88	88	0	176	189	25	2	216	16	252	0	268	660
08:45 AM	97	90	0	187	182	26	0	208	13	224	0	237	632
Total	378	332	0	710	718	83	9	810	73	935	0	1008	2528
09:00 AM	80	61	0	141	172	15	2	189	28	185	0	213	543
09:15 AM	74	67	0	141	171	10	1	182	32	205	0	237	560
09:30 AM	75	65	0	140	159	16	3	178	25	146	0	171	489
09:45 AM	63	62	1	126	145	11	2	158	20	146	0	166	450
Total	292	255	1	548	647	52	8	707	105	682	0	787	2042
10:00 AM	63	68	0	131	98	14	1	113	12	124	0	136	380
10:15 AM	69	65	0	134	96	11	0	107	13	115	0	128	369
10:30 AM	83	61	0	144	72	7	1	80	7	98	0	105	329
10:45 AM	70	57	0	127	96	15	0	111	18	112	0	130	368
Total	285	251	0	536	362	47	2	411	50	449	0	499	1446
11:00 AM	77	53	0	130	89	8	5	102	13	104	0	117	349
11:15 AM	86	86	0	172	59	16	1	76	21	80	0	101	349
11:30 AM	100	83	0	183	104	18	2	124	16	98	0	114	421
11:45 AM	103	91	0	194	97	11	0	108	22	97	0	119	421
Total	366	313	0	679	349	53	8	410	72	379	0	451	1540
12:00 PM	101	83	1	185	95	14	2	111	21	104	0	125	421
12:15 PM	92	65	0	157	73	14	0	87	15	98	0	113	357
12:30 PM	114	86	0	200	58	14	0	72	15	100	0	115	387
12:45 PM	112	80	0	192	81	18	1	100	16	81	0	97	389
Total	419	314	1	734	307	60	3	370	67	383	0	450	1554
01:00 PM	97	73	0	170	90	13	2	105	6	91	0	97	372
01:15 PM	86	78	0	164	85	20	0	105	14	87	0	101	370
01:30 PM	109	92	0	201	66	12	0	78	14	106	0	120	399
01:45 PM	107	85	0	192	89	14	1	104	27	123	0	150	446
Total	399	328	0	727	330	59	3	392	61	407	0	468	1587
02:00 PM	117	107	0	224	76	20	0	96	13	81	0	94	414
02:15 PM	107	85	0	192	70	21	0	91	17	98	0	115	398
02:30 PM	141	98	0	239	88	24	0	112	12	96	0	108	459
02:45 PM	123	86	0	209	93	22	1	116	12	121	0	133	458
Total	488	376	0	864	327	87	1	415	54	396	0	450	1729
03:00 PM	143	92	0	235	84	26	0	110	16	118	0	134	479
03:15 PM	130	108	0	238	96	26	4	126	14	137	0	151	515
03:30 PM	153	94	0	247	93	43	0	136	25	129	0	154	537
03:45 PM	155	107	0	262	114	22	2	138	10	130	0	140	540
Total	581	401	0	982	387	117	6	510	65	514	0	579	2071

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Location: Bethesda, MD
Intersection: Bradley Blvd / MD614
Date: Tuesday, April 21, 2009
Counter: ET / JT

File Name : EH0421-2
Site Code : 00000000
Start Date : 4/21/2009
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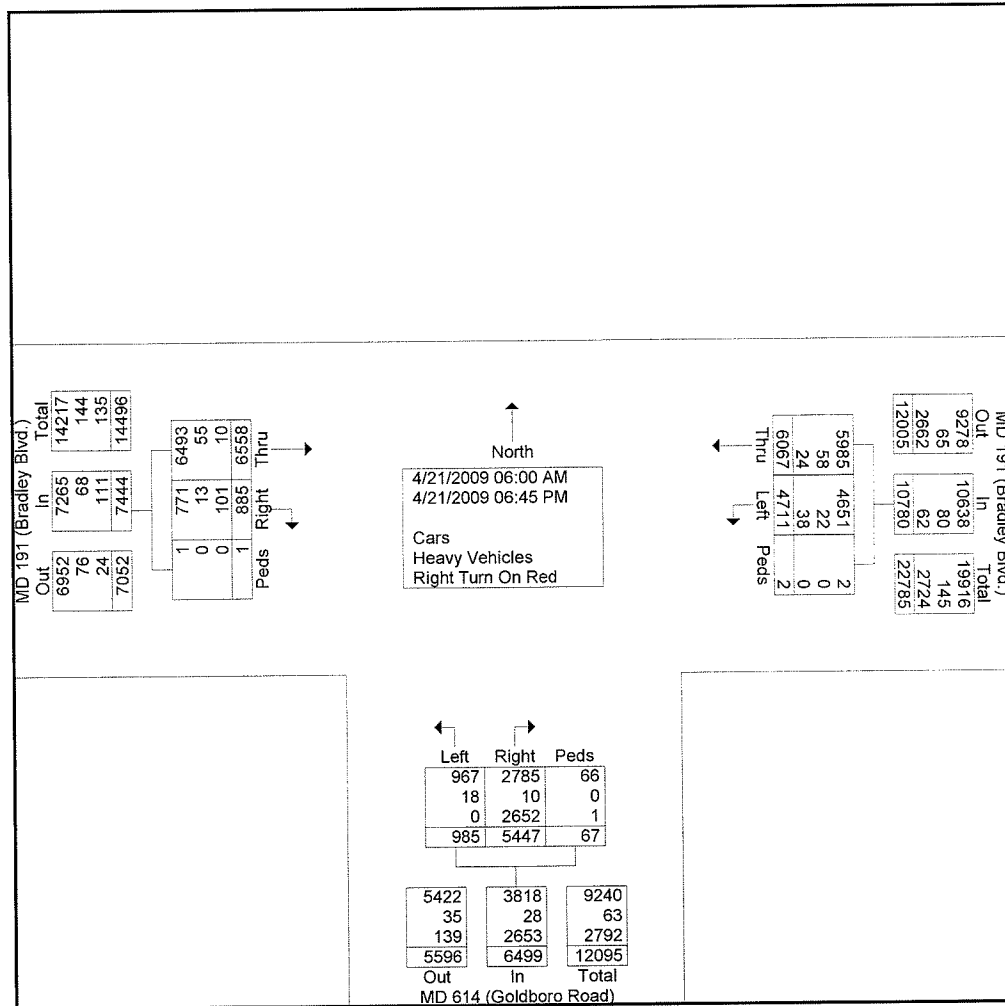
Groups Printed- Cars - Heavy Vehicles - Right Turn On Red

Start Time	MD 191 (Bradley Blvd.) From East				MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
04:00 PM	168	97	0	265	94	29	0	123	19	138	0	157	545
04:15 PM	162	123	0	285	125	25	1	151	19	127	0	146	582
04:30 PM	181	137	0	318	109	24	3	136	20	115	0	135	589
04:45 PM	173	128	0	301	111	42	0	153	19	117	0	136	590
Total	684	485	0	1169	439	120	4	563	77	497	0	574	2306
05:00 PM	219	143	0	362	115	33	2	150	21	115	0	136	648
05:15 PM	204	151	0	355	124	37	2	163	23	127	1	151	669
05:30 PM	231	171	0	402	132	35	0	167	19	107	0	126	695
05:45 PM	271	170	0	441	155	35	1	191	24	133	0	157	789
Total	925	635	0	1560	526	140	5	671	87	482	1	570	2801
06:00 PM	247	164	0	411	119	31	0	150	24	142	0	166	727
06:15 PM	240	183	0	423	103	32	1	136	25	113	0	138	697
06:30 PM	193	163	0	356	115	32	0	147	14	144	0	158	661
06:45 PM	165	141	0	306	107	21	1	129	25	124	0	149	584
Total	845	651	0	1496	444	116	2	562	88	523	0	611	2669
Grand Total	6067	4711	2	10780	5447	985	67	6499	885	6558	1	7444	24723
Apprch %	56.3	43.7	0		83.8	15.2	1		11.9	88.1	0		
Total %	24.5	19.1	0	43.6	22	4	0.3	26.3	3.6	26.5	0	30.1	
Cars	5985	4651	2	10638	2785	967	66	3818	771	6493	1	7265	21721
% Cars	98.6	98.7	100	98.7	51.1	98.2	98.5	58.7	87.1	99	100	97.6	87.9
Heavy Vehicles	58	22	0	80	10	18	0	28	13	55	0	68	176
% Heavy Vehicles	1	0.5	0	0.7	0.2	1.8	0	0.4	1.5	0.8	0	0.9	0.7
Right Turn On Red	24	38	0	62	2652	0	1	2653	101	10	0	111	2826
% Right Turn On Red	0.4	0.8	0	0.6	48.7	0	1.5	40.8	11.4	0.2	0	1.5	11.4

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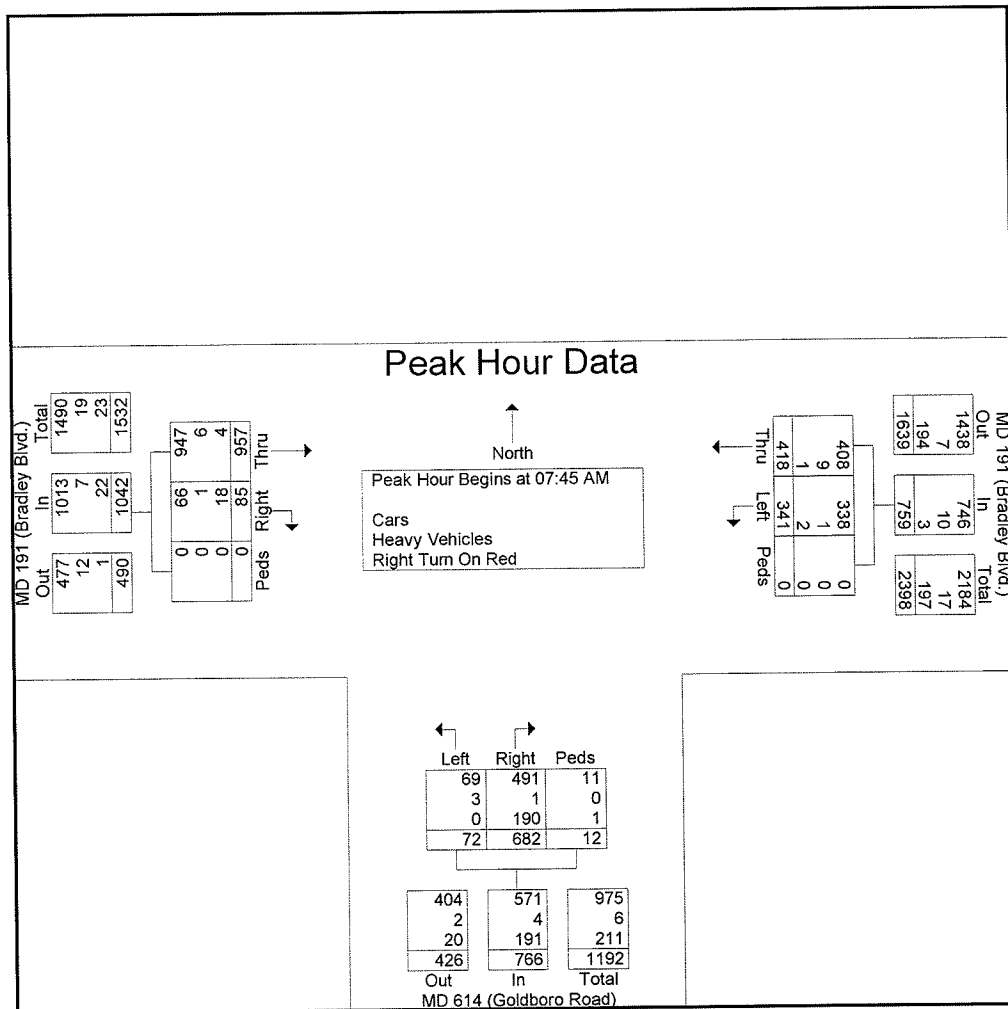


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	MD 191 (Bradley Blvd.) From East				MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	137	99	0	236	146	15	3	164	25	246	0	271	671
08:00 AM	101	78	0	179	171	11	3	185	19	238	0	257	621
08:15 AM	92	76	0	168	176	21	4	201	25	221	0	246	615
08:30 AM	88	88	0	176	189	25	2	216	16	252	0	268	660
Total Volume	418	341	0	759	682	72	12	766	85	957	0	1042	2567
% App. Total	55.1	44.9	0		89	9.4	1.6		8.2	91.8	0		
PHF	.763	.861	.000	.804	.902	.720	.750	.887	.850	.949	.000	.961	.956
Cars	408	338	0	746	491	69	11	571	66	947	0	1013	2330
% Cars	97.6	99.1	0	98.3	72.0	95.8	91.7	74.5	77.6	99.0	0	97.2	90.8
Heavy Vehicles	9	1	0	10	1	3	0	4	1	6	0	7	21
% Heavy Vehicles	2.2	0.3	0	1.3	0.1	4.2	0	0.5	1.2	0.6	0	0.7	0.8
Right Turn On Red	1	2	0	3	190	0	1	191	18	4	0	22	216
% Right Turn On Red	0.2	0.6	0	0.4	27.9	0	8.3	24.9	21.2	0.4	0	2.1	8.4

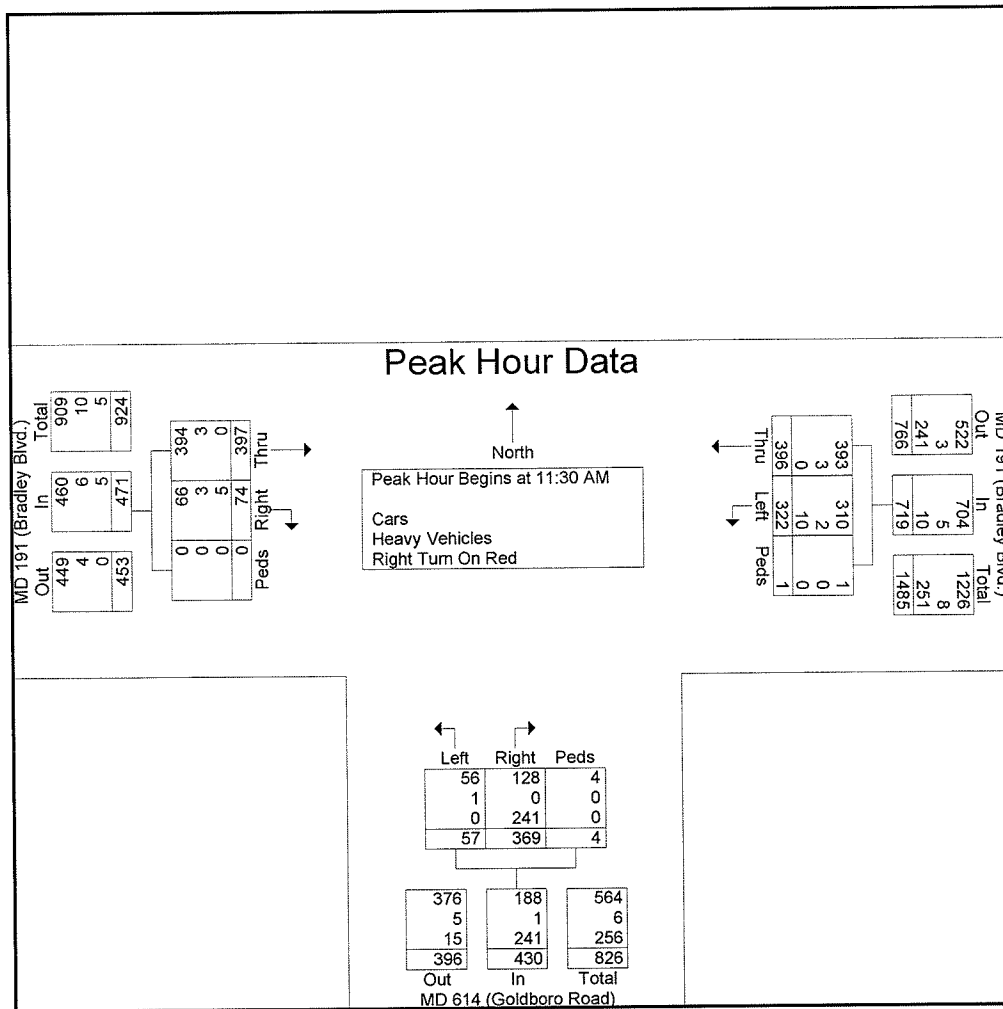


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Location: Bethesda, MD
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MD 191 (Bradley Blvd.) From East					MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	100	83	0	183	104	18	2	124	16	98	0	114	421
11:45 AM	103	91	0	194	97	11	0	108	22	97	0	119	421
12:00 PM	101	83	1	185	95	14	2	111	21	104	0	125	421
12:15 PM	92	65	0	157	73	14	0	87	15	98	0	113	357
Total Volume	396	322	1	719	369	57	4	430	74	397	0	471	1620
% App. Total	55.1	44.8	0.1		85.8	13.3	0.9		15.7	84.3	0		
PHF	.961	.885	.250	.927	.887	.792	.500	.867	.841	.954	.000	.942	.962
Cars	393	310	1	704	128	56	4	188	66	394	0	460	1352
% Cars	99.2	96.3	100	97.9	34.7	98.2	100	43.7	89.2	99.2	0	97.7	83.5
Heavy Vehicles	3	2	0	5	0	1	0	1	3	3	0	6	12
% Heavy Vehicles	0.8	0.6	0	0.7	0	1.8	0	0.2	4.1	0.8	0	1.3	0.7
Right Turn On Red	0	10	0	10	241	0	0	241	5	0	0	5	256
% Right Turn On Red	0	3.1	0	1.4	65.3	0	0	56.0	6.8	0	0	1.1	15.8

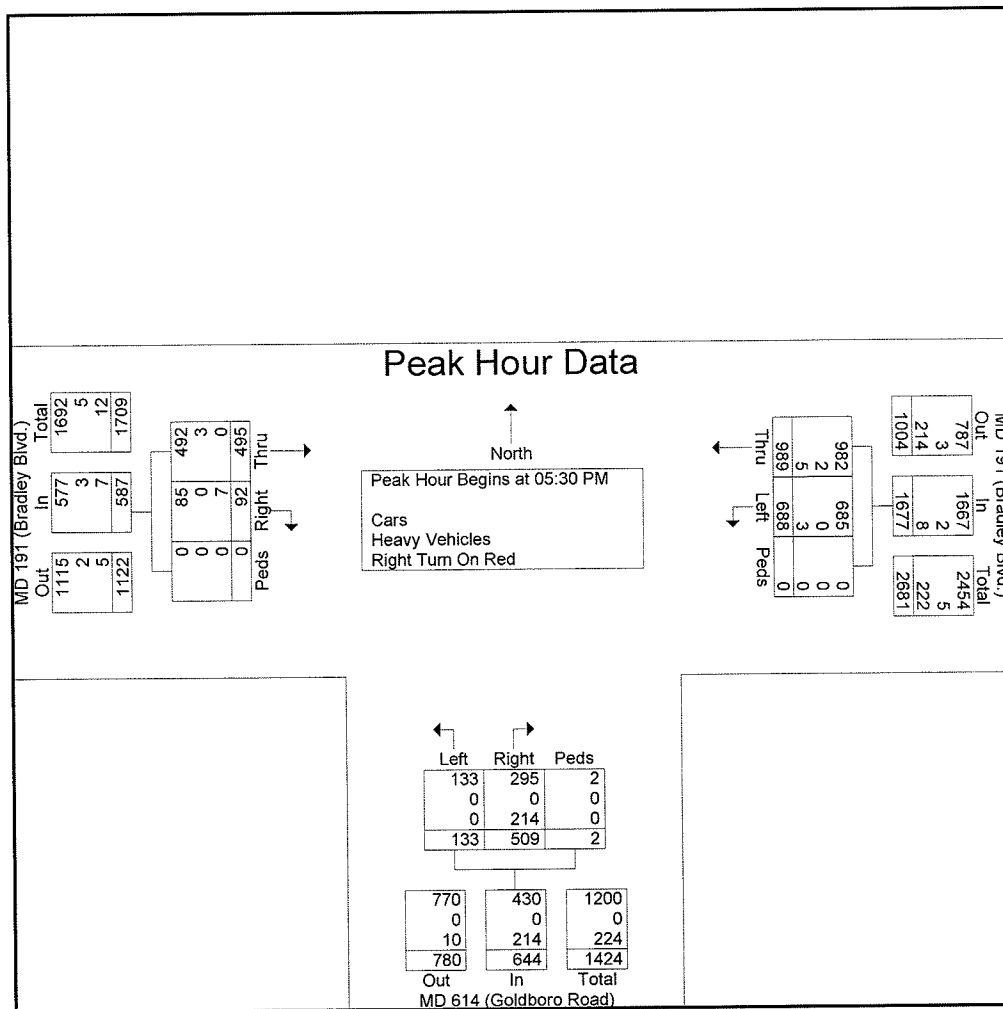


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Location: Bethesda, MD
Intersection: Bradley Blvd / MD614
Date: Tuesday, April 21, 2009
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File Name : EH0421-2
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	MD 191 (Bradley Blvd.) From East				MD 614 (Goldboro Road) From South				MD 191 (Bradley Blvd.) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:30 PM													
05:30 PM	231	171	0	402	132	35	0	167	19	107	0	126	695
05:45 PM	271	170	0	441	155	35	1	191	24	133	0	157	789
06:00 PM	247	164	0	411	119	31	0	150	24	142	0	166	727
06:15 PM	240	183	0	423	103	32	1	136	25	113	0	138	697
Total Volume	989	688	0	1677	509	133	2	644	92	495	0	587	2908
% App. Total	59	41	0		79	20.7	0.3		15.7	84.3	0		
PHF	.912	.940	.000	.951	.821	.950	.500	.843	.920	.871	.000	.884	.921
Cars	982	685	0	1667	295	133	2	430	85	492	0	577	2674
% Cars	99.3	99.6	0	99.4	58.0	100	100	66.8	92.4	99.4	0	98.3	92.0
Heavy Vehicles	2	0	0	2	0	0	0	0	0	3	0	3	5
% Heavy Vehicles	0.2	0	0	0.1	0	0	0	0	0	0.6	0	0.5	0.2
Right Turn On Red	5	3	0	8	214	0	0	214	7	0	0	7	229
% Right Turn On Red	0.5	0.4	0	0.5	42.0	0	0	33.2	7.6	0	0	1.2	7.9



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Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
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Groups Printed- Cars - Heavy Vehicles/Bikes - RTOR

	RT 188 WILSON LA From North					RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	2	12	2	0	16	2	13	1	0	16	1	11	0	0	12	0	19	4	0	23	67
06:15 AM	1	10	1	1	13	1	12	2	1	16	3	5	0	1	9	0	24	5	0	29	67
06:30 AM	4	13	2	2	21	0	21	2	0	23	4	26	0	1	31	0	39	8	0	47	122
06:45 AM	8	27	2	0	37	1	32	3	2	38	4	38	0	3	45	1	73	14	0	88	208
Total	15	62	7	3	87	4	78	8	3	93	12	80	0	5	97	1	155	31	0	187	464
07:00 AM	4	48	2	0	54	0	34	6	4	44	4	58	4	2	68	3	99	19	0	121	287
07:15 AM	13	39	7	1	60	4	54	13	3	74	5	66	7	1	79	4	156	21	0	181	394
07:30 AM	17	45	10	0	72	3	89	7	3	102	9	70	6	1	86	3	164	18	0	185	445
07:45 AM	9	38	8	0	55	5	122	8	2	137	8	95	1	1	105	0	180	18	0	198	495
Total	43	170	27	1	241	12	299	34	12	357	26	289	18	5	338	10	599	76	0	685	1621
08:00 AM	12	36	9	3	60	6	92	12	1	111	27	100	6	0	133	2	175	31	2	210	514
08:15 AM	9	43	9	0	61	8	87	12	3	110	18	86	2	4	110	7	205	30	0	242	523
08:30 AM	17	36	7	3	63	20	91	6	5	122	12	105	10	0	127	2	203	31	0	236	548
08:45 AM	14	22	8	0	44	12	126	7	5	150	12	106	2	3	123	3	183	36	0	222	539
Total	52	137	33	6	228	46	396	37	14	493	69	397	20	7	493	14	766	128	2	910	2124
09:00 AM	14	54	15	0	83	7	93	11	2	113	17	137	4	0	158	1	199	16	0	216	570
09:15 AM	6	30	5	0	41	10	92	12	4	118	10	79	2	1	92	6	201	19	0	226	477
09:30 AM	7	23	9	3	42	4	68	6	2	80	11	78	3	1	93	5	142	21	0	168	383
09:45 AM	11	26	2	0	39	6	77	4	3	90	8	75	1	1	85	5	120	21	0	146	360
Total	38	133	31	3	205	27	330	33	11	401	46	369	10	3	428	17	662	77	0	756	1790
10:00 AM	10	25	9	0	44	6	54	6	2	68	11	61	0	0	72	2	99	21	0	122	306
10:15 AM	4	45	13	1	63	11	83	9	0	103	9	73	1	0	83	3	109	13	0	125	374
10:30 AM	7	36	6	0	49	8	53	10	1	72	14	43	2	1	60	4	106	17	0	127	308
10:45 AM	13	47	7	0	67	4	93	2	1	100	10	59	2	2	73	8	101	9	4	122	362
Total	34	153	35	1	223	29	283	27	4	343	44	236	5	3	288	17	415	60	4	496	1350
11:00 AM	7	29	7	0	43	4	85	11	0	100	6	49	0	1	56	5	88	12	0	105	304
11:15 AM	3	23	3	0	29	11	84	8	0	103	11	52	0	0	63	3	94	14	0	111	306
11:30 AM	11	30	7	0	48	6	87	5	3	101	8	51	3	1	63	6	103	17	0	126	338
11:45 AM	10	33	7	1	51	11	93	14	0	118	14	43	3	0	60	3	81	11	0	95	324
Total	31	115	24	1	171	32	349	38	3	422	39	195	6	2	242	17	366	54	0	437	1272
12:00 PM	9	43	4	0	56	6	87	12	5	110	12	48	8	0	68	5	91	17	0	113	347
12:15 PM	18	36	6	1	61	9	91	14	1	115	9	41	1	2	53	5	98	12	0	115	344
12:30 PM	12	32	6	0	50	9	94	12	25	140	13	26	3	1	43	3	97	13	0	113	346
12:45 PM	14	37	6	0	57	10	101	8	2	121	10	43	1	0	54	1	95	16	0	112	344
Total	53	148	22	1	224	34	373	46	33	486	44	158	13	3	218	14	381	58	0	453	1381
01:00 PM	8	39	2	0	49	5	102	9	1	117	14	50	3	0	67	1	102	8	0	111	344
01:15 PM	7	32	6	2	47	8	84	16	0	108	10	41	1	0	52	1	74	13	0	88	295
01:30 PM	10	59	3	3	75	7	90	8	6	111	9	55	3	2	69	2	88	10	0	100	355
01:45 PM	10	53	4	0	67	12	105	10	4	131	11	43	0	2	56	4	77	10	2	93	347
Total	35	183	15	5	238	32	381	43	11	467	44	189	7	4	244	8	341	41	2	392	1341
02:00 PM	17	55	5	0	77	9	96	11	0	116	11	57	4	0	72	5	92	12	0	109	374
02:15 PM	13	64	7	0	84	4	103	15	3	125	17	46	3	0	66	1	81	18	0	100	375
02:30 PM	18	48	10	0	76	10	102	20	11	143	11	37	8	0	56	2	89	21	0	112	387
02:45 PM	13	67	4	0	84	10	127	18	0	155	8	62	13	1	84	9	108	32	0	149	472
Total	61	234	26	0	321	33	428	64	14	539	47	202	28	1	278	17	370	83	0	470	1608
03:00 PM	17	47	6	0	70	11	190	10	3	214	7	64	19	0	90	2	106	20	0	128	502
03:15 PM	15	47	7	1	70	6	167	19	0	192	13	71	14	0	98	3	129	32	1	165	525
03:30 PM	5	69	6	0	80	6	140	18	2	166	12	69	10	1	92	12	117	29	0	158	496
03:45 PM	15	75	2	0	92	7	158	23	2	190	17	63	7	0	87	5	119	17	0	141	510
Total	52	238	21	1	312	30	655	70	7	762	49	267	50	1	367	22	471	98	1	592	2033

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Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
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Site Code : 00000000
Start Date : 4/23/2009
Page No : 2

Groups Printed- Cars - Heavy Vehicles/Bikes - RTOR

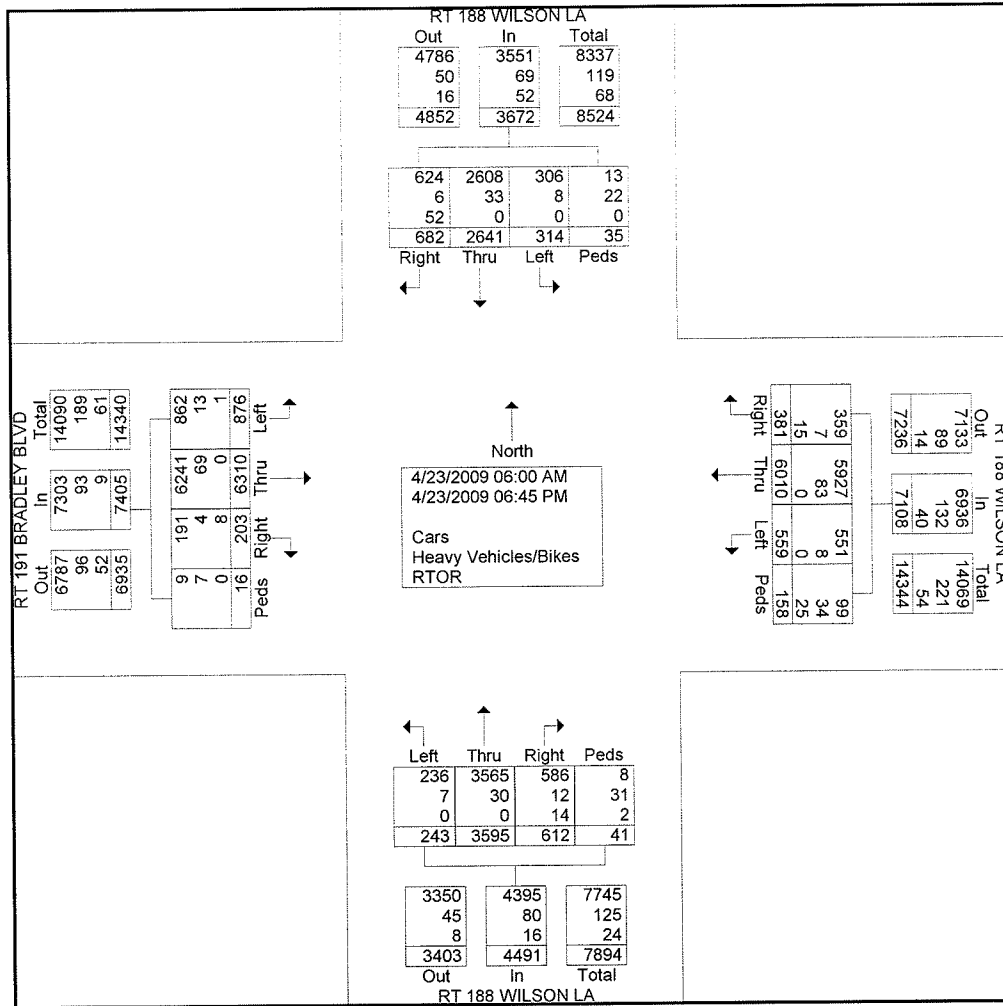
Start Time	RT 188 WILSON LA From North					RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	19	62	10	0	91	13	182	15	2	212	16	73	7	1	97	5	135	11	0	151	551
04:15 PM	22	69	5	0	96	13	189	19	1	222	17	67	4	0	88	7	115	12	0	134	540
04:30 PM	22	63	5	0	90	7	170	15	5	197	17	88	5	0	110	7	122	13	0	142	539
04:45 PM	22	91	7	0	120	10	215	14	2	241	15	120	8	1	144	4	114	12	0	130	635
Total	85	285	27	0	397	43	756	63	10	872	65	348	24	2	439	23	486	48	0	557	2265
05:00 PM	16	80	8	0	104	11	208	16	7	242	17	139	7	0	163	2	85	6	0	93	602
05:15 PM	22	87	3	1	113	6	222	12	3	243	13	121	12	2	148	2	111	15	1	129	633
05:30 PM	27	90	3	1	121	7	202	11	3	223	13	86	13	0	112	11	211	17	0	239	695
05:45 PM	30	106	3	4	143	5	208	10	6	229	13	104	10	1	128	2	172	10	2	186	686
Total	95	363	17	6	481	29	840	49	19	937	56	450	42	3	551	17	579	48	3	647	2616
06:00 PM	17	111	8	1	137	5	225	9	3	242	16	98	0	1	115	4	193	16	0	213	707
06:15 PM	27	130	7	3	167	6	224	13	5	248	13	101	7	0	121	11	192	18	1	222	758
06:30 PM	24	86	7	3	120	5	236	14	5	260	24	116	7	1	148	6	166	16	3	191	719
06:45 PM	20	93	7	0	120	14	157	11	4	186	18	100	6	0	124	5	168	24	0	197	627
Total	88	420	29	7	544	30	842	47	17	936	71	415	20	2	508	26	719	74	4	823	2811
Grand Total	682	2641	314	35	3672	381	6010	559	158	7108	612	3595	243	41	4491	203	6310	876	16	7405	22676
Apprch %	18.6	71.9	8.6	1		5.4	84.6	7.9	2.2		13.6	80	5.4	0.9		2.7	85.2	11.8	0.2		
Total %	3	11.6	1.4	0.2	16.2	1.7	26.5	2.5	0.7	31.3	2.7	15.9	1.1	0.2	19.8	0.9	27.8	3.9	0.1	32.7	
Cars	624	2608	306	13	3551	359	5927	551	99	6936	586	3565	236	8	4395	191	6241	862	9	7303	22185
% Cars	91.5	98.8	97.5	37.1	96.7	94.2	98.6	98.6	62.7	97.6	95.8	99.2	97.1	19.5	97.9	94.1	98.9	98.4	56.2	98.6	97.8
Heavy Vehicles/Bikes	6	33	8	22	69	7	83	8	34	132	12	30	7	31	80	4	69	13	7	93	374
% Heavy Vehicles/Bikes	0.9	1.2	2.5	62.9	1.9	1.8	1.4	1.4	21.5	1.9	2	0.8	2.9	75.6	1.8	2	1.1	1.5	43.8	1.3	1.6
RTOR	52	0	0	0	52	15	0	0	25	40	14	0	0	2	16	8	0	1	0	9	117
% RTOR	7.6	0	0	0	1.4	3.9	0	0	15.8	0.6	2.3	0	0	4.9	0.4	3.9	0	0.1	0	0.1	0.5

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Location: Bethesda,MD
 Intersection:RT191/RT188
 Date:Thursday, April 23,2009
 Counter: CMK

File Name : EH0423-1
 Site Code : 00000000
 Start Date : 4/23/2009
 Page No : 3

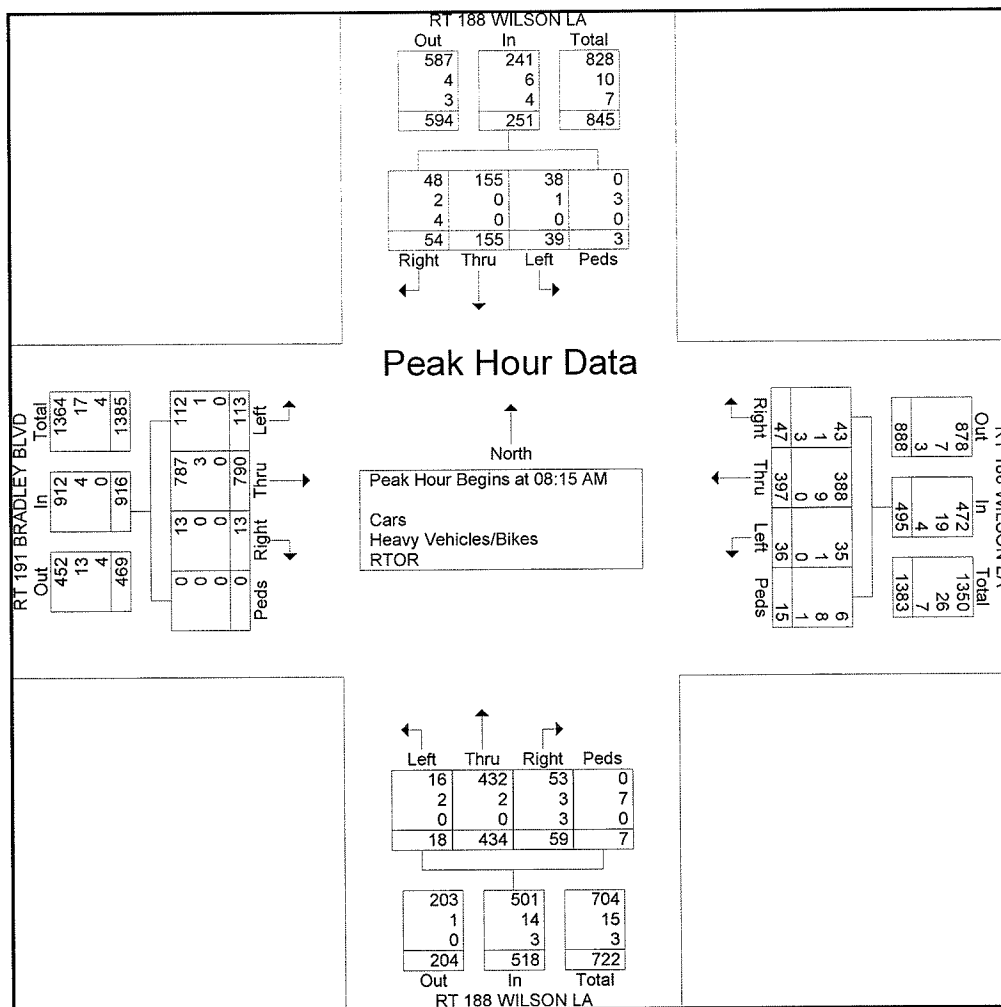


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Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
Start Date : 4/23/2009
Page No : 4

	RT 188 WILSON LA From North					RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:15 AM																					
08:15 AM	9	43	9	0	61	8	87	12	3	110	18	86	2	4	110	7	205	30	0	242	523
08:30 AM	17	36	7	3	63	20	91	6	5	122	12	105	10	0	127	2	203	31	0	236	548
08:45 AM	14	22	8	0	44	12	126	7	5	150	12	106	2	3	123	3	183	36	0	222	539
09:00 AM	14	54	15	0	83	7	93	11	2	113	17	137	4	0	158	1	199	16	0	216	570
Total Volume	54	155	39	3	251	47	397	36	15	495	59	434	18	7	518	13	790	113	0	916	2180
% App. Total	21.5	61.8	15.5	1.2		9.5	80.2	7.3	3		11.4	83.8	3.5	1.4		1.4	86.2	12.3	0		
PHF	.794	.718	.650	.250	.756	.588	.788	.750	.750	.825	.819	.792	.450	.438	.820	.464	.963	.785	.000	.946	.956
Cars	48	155	38	0	241	43	388	35	6	472	53	432	16	0	501	13	787	112	0	912	2126
% Cars	88.9	100	97.4	0	96.0	91.5	97.7	97.2	40.0	95.4	89.8	99.5	88.9	0	96.7	100	99.6	99.1	0	99.6	97.5
Heavy Vehicles/Bikes	3.7	0	2.6	100	2.4	2.1	2.3	2.8	53.3	3.8	5.1	0.5	11.1	100	2.7	0	0.4	0.9	0	0.4	2.0
% Heavy Vehicles/Bikes	4	0	0	0	4	3	0	0	1	4	3	0	0	0	3	0	0	0	0	0	11
RTOR	7.4	0	0	0	1.6	6.4	0	0	6.7	0.8	5.1	0	0	0	0.6	0	0	0	0	0	0.5

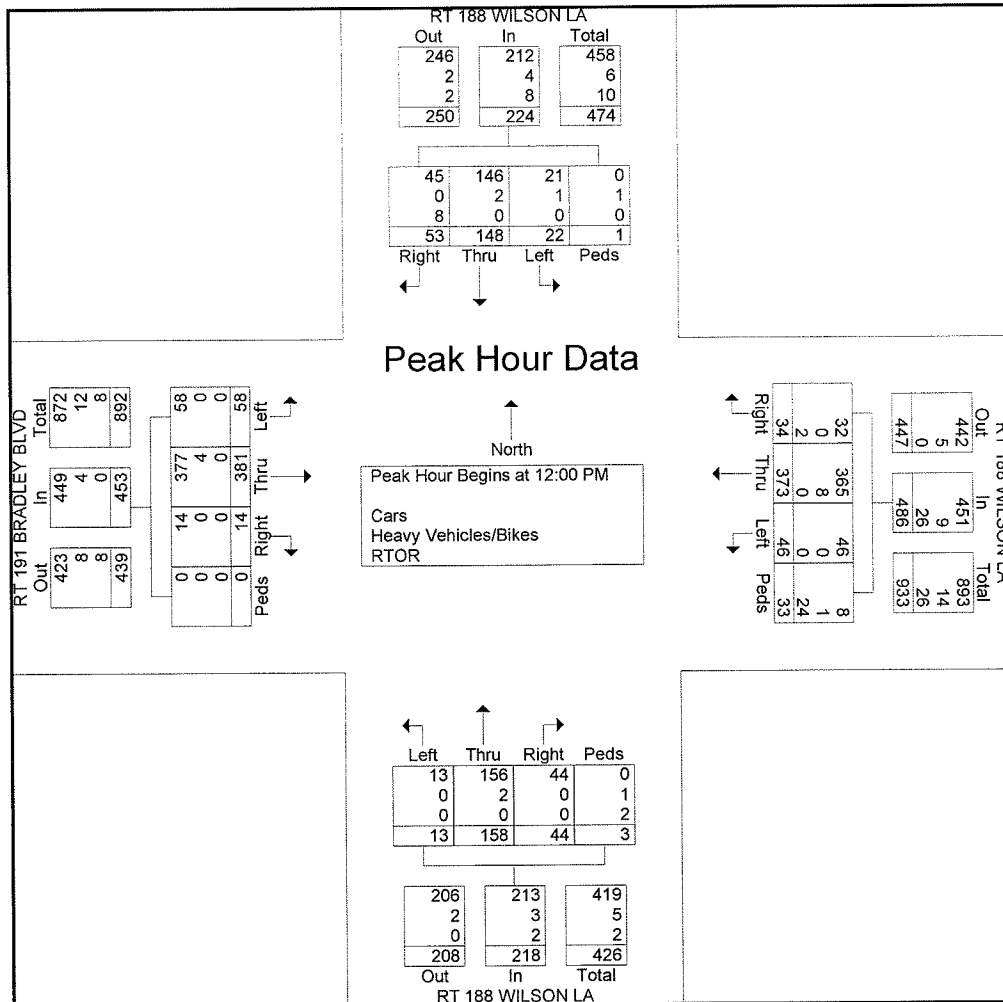


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Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
Start Date : 4/23/2009
Page No : 5

RT 188 WILSON LA From North						RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	9	43	4	0	56	6	87	12	5	110	12	48	8	0	68	5	91	17	0	113	347
12:15 PM	18	36	6	1	61	9	91	14	1	115	9	41	1	2	53	5	98	12	0	115	344
12:30 PM	12	32	6	0	50	9	94	12	25	140	13	26	3	1	43	3	97	13	0	113	346
12:45 PM	14	37	6	0	57	10	101	8	2	121	10	43	1	0	54	1	95	16	0	112	344
Total Volume	53	148	22	1	224	34	373	46	33	486	44	158	13	3	218	14	381	58	0	453	1381
% App. Total	23.7	66.1	9.8	0.4		7	76.7	9.5	6.8		20.2	72.5	6	1.4		3.1	84.1	12.8	0		
PHF	.736	.860	.917	.250	.918	.850	.923	.821	.330	.868	.846	.823	.406	.375	.801	.700	.972	.853	.000	.985	.995
Cars	45	146	21	0	212	32	365	46	8	451	44	156	13	0	213	14	377	58	0	449	1325
% Cars	84.9	98.6	95.5	0	94.6	94.1	97.9	100	24.2	92.8	100	98.7	100	0	97.7	100	99.0	100	0	99.1	95.9
Heavy Vehicles/Bikes	0	1.4	4.5	100	1.8	0	2.1	0	3.0	1.9	0	1.3	0	33.3	1.4	0	1.0	0	0	0.9	1.4
% Heavy Vehicles/Bikes	0	0.9	2.3	45.5	0.8	0	0.6	0	9.1	0.4	0	0.8	0	100.0	0.6	0	0.3	0	0	0.2	0.4
RTOR	8	0	0	0	8	2	0	0	24	26	0	0	0	2	2	0	0	0	0	0	36
% RTOR	15.1	0	0	0	3.6	5.9	0	0	72.7	5.3	0	0	0	66.7	0.9	0	0	0	0	0	2.6



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Location: Bethesda, MD
Intersection: RT191/RT188
Date: Thursday, April 23, 2009
Counter: CMK

File Name : EH0423-1
Site Code : 00000000
Start Date : 4/23/2009
Page No : 6

	RT 188 WILSON LA From North					RT 188 WILSON LA From East					RT 188 WILSON LA From South					RT 191 BRADLEY BLVD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:45 PM																					
05:45 PM	30	106	3	4	143	5	208	10	6	229	13	104	10	1	128	2	172	10	2	186	686
06:00 PM	17	111	8	1	137	5	225	9	3	242	16	98	0	1	115	4	193	16	0	213	707
06:15 PM	27	130	7	3	167	6	224	13	5	248	13	101	7	0	121	11	192	18	1	222	758
06:30 PM	24	86	7	3	120	5	236	14	5	260	24	116	7	1	148	6	166	16	3	191	719
Total Volume	98	433	25	11	567	21	893	46	19	979	66	419	24	3	512	23	723	60	6	812	2870
% App. Total	17.3	76.4	4.4	1.9		2.1	91.2	4.7	1.9		12.9	81.8	4.7	0.6		2.8	89	7.4	0.7		
PHF	.817	.833	.781	.688	.849	.875	.946	.821	.792	.941	.688	.903	.600	.750	.865	.523	.937	.833	.500	.914	.947
Cars	88	429	25	6	548	21	891	46	16	974	63	417	24	2	506	23	719	60	2	804	2832
% Cars	89.8	99.1	100	54.5	96.6	100	99.8	100	84.2	99.5	95.5	99.5	100	66.7	98.8	100	99.4	100	33.3	99.0	98.7
Heavy Vehicles/Bikes	2.0	0.9	0	45.5	1.9	0	0.2	0	15.8	0.5	1.5	0.5	0	33.3	0.8	0	0.6	0	66.7	1.0	1.0
% Heavy Vehicles/Bikes	8	0	0	0	8	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	10
RTOR	8.2	0	0	0	1.4	0	0	0	0	0	3.0	0	0	0	0.4	0	0	0	0	0	0.3

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Location: Bethesda, MD
Intersection: Bradley Blvd/Goldsboro Rd
Date: Saturday, April 26, 2009
Counter: LEM

File Name : Sat_Bradley_Goldsboro
Site Code : 04250971
Start Date : 4/25/2009
Page No : 1

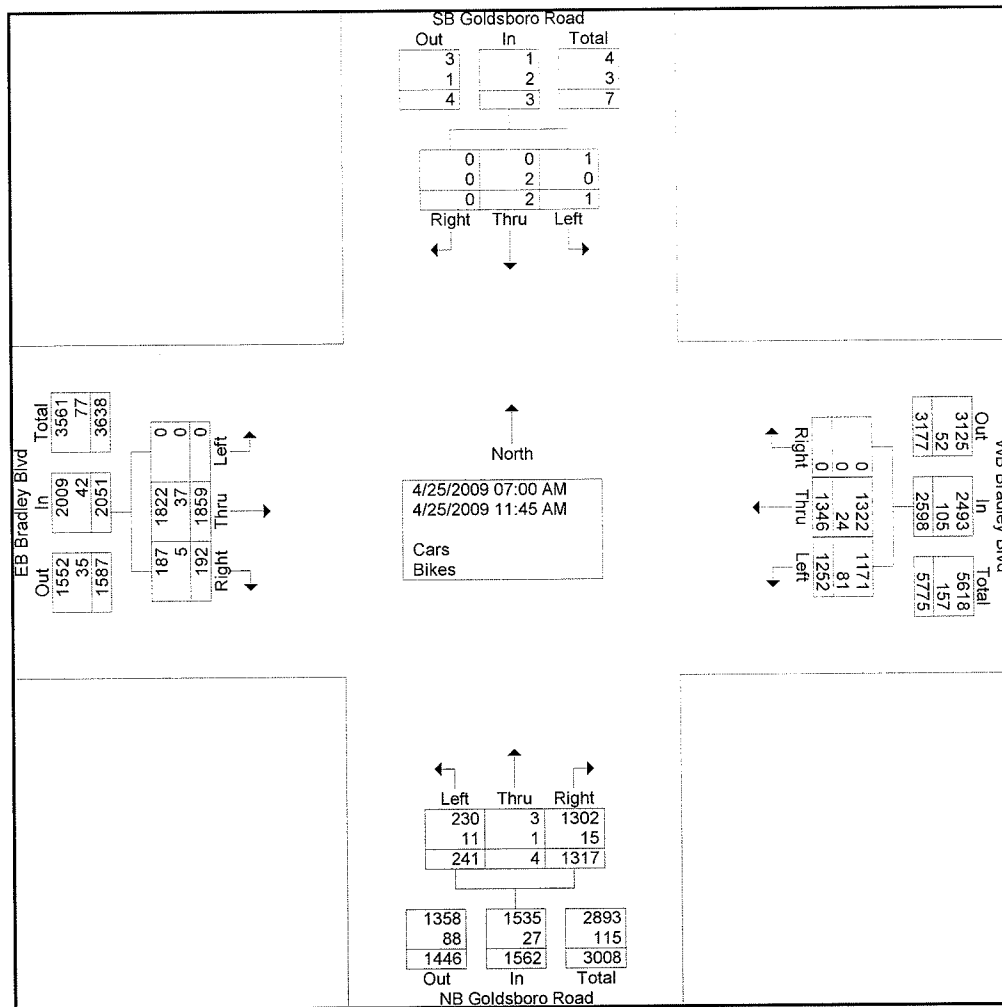
Groups Printed- Cars - Bikes

	SB Goldsboro Road From North					WB Bradley Blvd From East					NB Goldsboro Road From South					EB Bradley Blvd From West							
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	17	18	0	35	29	0	2	0	31	2	24	0	2	26	2	92	94
07:15 AM	0	0	0	0	0	0	26	84	0	110	22	0	0	0	22	5	37	0	0	42	0	174	174
07:30 AM	0	0	0	0	0	0	33	29	0	62	34	0	1	0	35	3	44	0	0	47	0	144	144
07:45 AM	0	0	0	0	0	0	38	32	0	70	47	0	7	0	54	6	40	0	0	46	0	170	170
Total	0	0	0	0	0	0	114	163	0	277	132	0	10	0	142	16	145	0	2	161	2	580	582
08:00 AM	0	0	0	0	0	0	28	39	0	67	43	0	9	0	52	5	41	0	0	46	0	165	165
08:15 AM	0	0	0	0	0	0	37	34	0	71	73	0	9	0	82	10	57	0	0	67	0	220	220
08:30 AM	0	0	0	0	0	0	52	56	0	108	54	0	5	0	59	14	74	0	0	88	0	255	255
08:45 AM	0	0	0	0	0	0	70	51	0	121	73	0	16	0	89	7	106	0	0	113	0	323	323
Total	0	0	0	0	0	0	187	180	0	367	243	0	39	0	282	36	278	0	0	314	0	963	963
09:00 AM	0	0	0	0	0	0	43	46	0	89	49	0	5	0	54	3	63	0	0	66	0	209	209
09:15 AM	0	0	0	0	0	0	65	65	0	130	57	0	12	0	69	9	92	0	0	101	0	300	300
09:30 AM	0	0	1	0	1	0	66	82	0	148	71	0	14	0	85	5	138	0	0	143	0	377	377
09:45 AM	0	0	0	0	0	0	88	70	0	158	93	0	21	0	114	14	149	0	0	163	0	435	435
Total	0	0	1	0	1	0	262	263	0	525	270	0	52	0	322	31	442	0	0	473	0	1321	1321
10:00 AM	0	1	0	0	1	0	89	80	0	169	88	0	21	0	109	10	106	0	0	116	0	395	395
10:15 AM	0	0	0	0	0	0	87	85	0	172	73	0	20	0	93	14	124	0	0	138	0	403	403
10:30 AM	0	0	0	0	0	0	83	78	0	161	85	0	18	0	103	12	109	0	0	121	0	385	385
10:45 AM	0	0	0	0	0	0	81	60	0	141	72	0	11	0	83	12	93	0	0	105	0	329	329
Total	0	1	0	0	1	0	340	303	0	643	318	0	70	0	388	48	432	0	0	480	0	1512	1512
11:00 AM	0	0	0	0	0	0	103	62	0	165	109	3	22	0	134	15	137	0	0	152	0	451	451
11:15 AM	0	0	0	0	0	0	93	100	0	193	66	0	17	0	83	16	125	0	0	141	0	417	417
11:30 AM	0	1	0	0	1	0	118	85	0	203	73	0	17	0	90	17	173	0	0	190	0	484	484
11:45 AM	0	0	0	0	0	0	129	96	0	225	106	1	14	0	121	13	127	0	0	140	0	486	486
Total	0	1	0	0	1	0	443	343	0	786	354	4	70	0	428	61	562	0	0	623	0	1838	1838
Grand Total	0	2	1	0	3	0	1346	1252	0	2598	1317	4	241	0	1562	192	1659	0	2	2051	2	6214	6216
Apprch %	0	66.7	33.3			0	51.8	48.2			84.3	0.3	15.4			9.4	90.6	0					
Total %	0	0	0		0	0	21.7	20.1		41.8	21.2	0.1	3.9		25.1	3.1	29.9	0		33	0	100	
Cars	0	0	1		1	0	1322	1171		2493	1302	3	230		1535	187	1822	0		2011	0	0	6040
% Cars	0	0	100		33.3	0	98.2	93.5	0	96	98.9	75	95.4	0	98.3	97.4	98	0	100	98	0	0	97.2
Bikes	0	2	0		2	0	24	81		105	15	1	11		27	5	37	0		42	0	0	176
% Bikes	0	100	0		66.7	0	1.8	6.5	0	4	1.1	25	4.6	0	1.7	2.6	2	0	0	2	0	0	2.8

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File Name : Sat_Bradley_Goldsboro
 Site Code : 04250971
 Start Date : 4/25/2009
 Page No : 2



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File Name : Sat_Bradley_Goldsboro
Site Code : 04250971
Start Date : 4/25/2009
Page No : 3

	SB Goldsboro Road From North				WB Bradley Blvd From East				NB Goldsboro Road From South				EB Bradley Blvd From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:00 AM																	
11:00 AM	0	0	0	0	0	103	62	165	109	3	22	134	15	137	0	152	451
11:15 AM	0	0	0	0	0	93	100	193	66	0	17	83	16	125	0	141	417
11:30 AM	0	1	0	1	0	118	85	203	73	0	17	90	17	173	0	190	484
11:45 AM	0	0	0	0	0	129	96	225	106	1	14	121	13	127	0	140	486
Total Volume	0	1	0	1	0	443	343	786	354	4	70	428	61	562	0	623	1838
% App. Total	0	100	0		0	56.4	43.6		82.7	0.9	16.4		9.8	90.2	0		
PHF	.000	.250	.000	.250	.000	.859	.858	.873	.812	.333	.795	.799	.897	.812	.000	.820	.945

Traffic Study

APPENDIX D

Critical Lane Volume Analysis Worksheets

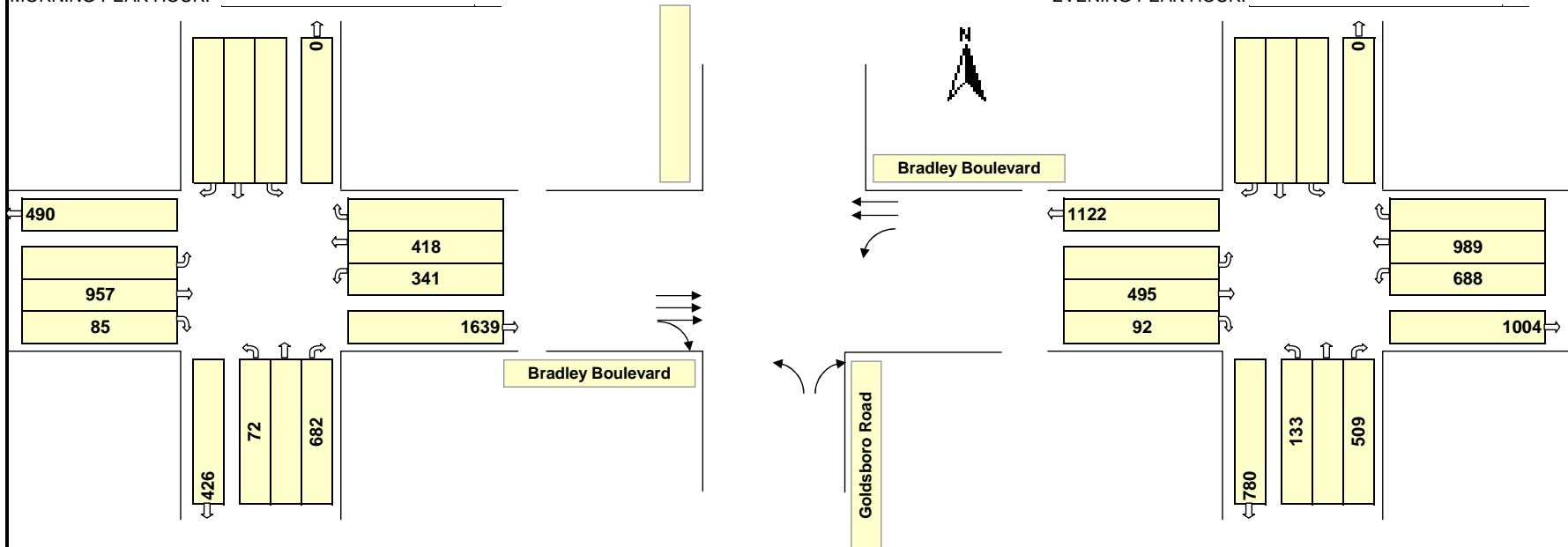


TURNING MOVEMENT SUMMARY AND LEVEL OF SERVICE

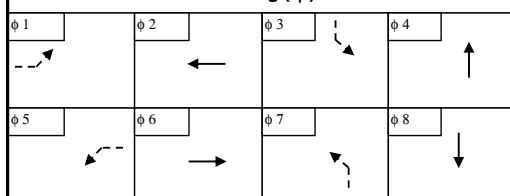
Project: **Bradley Boulevard Bikeway** WR&A W.O. #: **31681-002**
Location: **Bradley Boulevard @ Goldsboro Road** County: **Montgomery**
Condition: **Existing (2009)** Computed by: **EFH** Date: **07/21/09**

MORNING PEAK HOUR: 7:45-8:45 AM

EVENING PEAK HOUR: 5:30-6:30 PM



Phasing (φ)



Intersection Control: Signal ☒ Stop ☐ -Way

RTOR: NB ☒ SB ☐ EB ☒ WB ☐

No. of Lanes	Lane Use Factor	Service Level	Critical Lane Volume	Opposing Volume (vhp)	L.T. Factor (PCE)
1	= 1.00	1000 A	1000		
2	= 0.55	1150 B	1150	199	1.1
3	= 0.40	1300 C	1300	599	2.0
4	= 0.30	1450 D	1450	799	3.0
Double L.T. =	0.60	1600 E	1600	999	4.0
		1600 F	1600	1000	5.0

φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*	φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*	
4	NBL	▼	0	0	1.0	72	1.00	72	0	72	<input type="checkbox"/>	1	NBL	▼	0	0	1.0	133	1.00	133	0	133	<input checked="" type="checkbox"/>	
8		▼	0	0	0.0	0	1.00	0	0	0	<input type="checkbox"/>	2		▼	0	0	0.0	0	1.00	0	0	0	<input type="checkbox"/>	
6	EBTR+WBL	▼	85	957	0.0	0	1042	0.40	417	341	<input checked="" type="checkbox"/>	3	EBTR+WBL	▼	92	495	0.0	0	587	0.40	235	688	923	<input checked="" type="checkbox"/>
2	WBT	▼	0	418	0.0	0	418	0.55	230	0	<input type="checkbox"/>	4	WBT	▼	0	989	0.0	0	989	0.55	544	0	544	<input type="checkbox"/>
		▼									<input type="checkbox"/>			▼									<input type="checkbox"/>	
	NBR-WBL		341			341	1.00	341	0	341	<input checked="" type="checkbox"/>			▼									<input type="checkbox"/>	

Remarks:

* Critical Volume

TOTAL: **1099**
Level of Service: **B**
V/C: **0.69**

Remarks:

* Critical Volume

TOTAL: **1056**
Level of Service: **B**
V/C: **0.66**

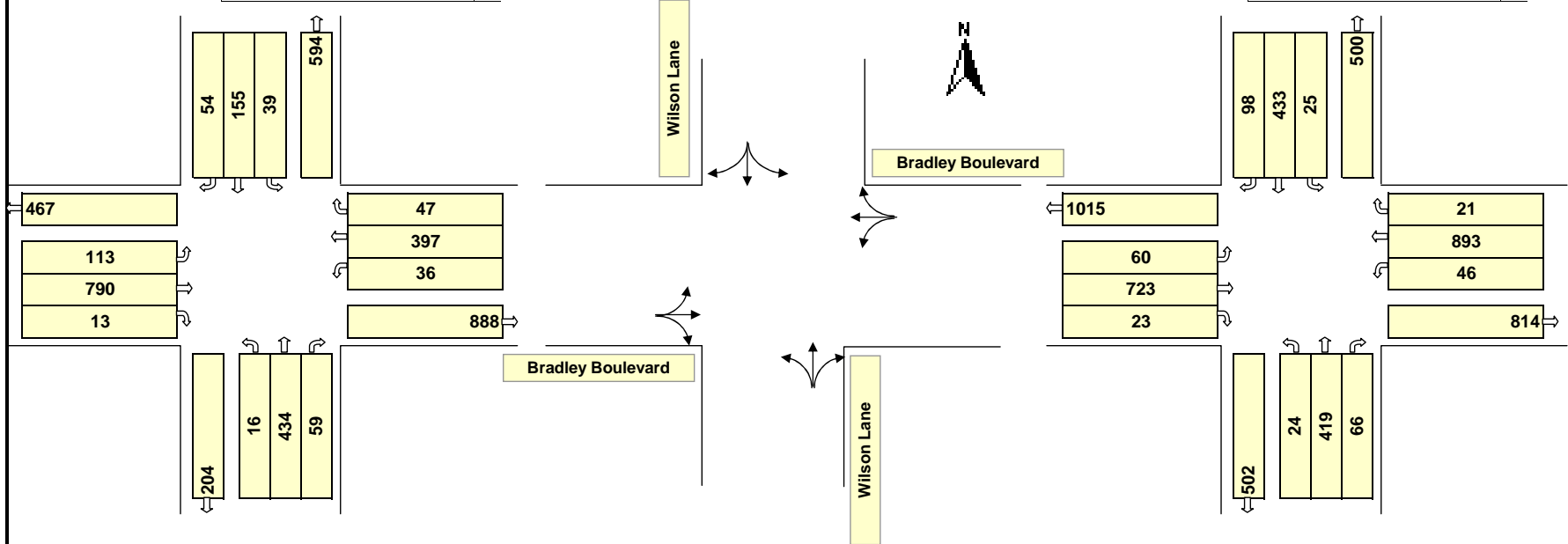


TURNING MOVEMENT SUMMARY AND LEVEL OF SERVICE

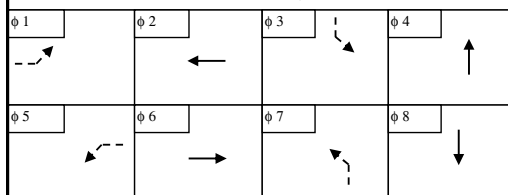
Project: **Bradley Boulevard Bikeway** WR&A W.O. #: **31681-002**
Location: **Bradley Boulevard @ Wilson Lane** County: **Montgomery**
Condition: **Existing (2009)** Computed by: **EFH** Date: **07/21/09**
No Left-Turn Lanes

MORNING PEAK HOUR: 7:45-8:45 AM

EVENING PEAK HOUR: 5:45-6:45 PM



Phasing (φ)



Intersection Control: Signal ☒ Stop ☐ -Way

RTOR: NB ☒ SB ☒ EB ☒ WB ☒

No. of Lanes	Lane Use Factor	Service Level	Critical Lane Volume	Opposing Volume (vhp)	L.T. Factor (PCE)
1	= 1.00	1000 A	1000	199	1.1
2	= 0.55	1150 B	1150	599	2.0
3	= 0.40	1300 C	1300	799	3.0
4	= 0.30	1450 D	1450	999	4.0
Double L.T.	= 0.60	1600 E	1600	1000	5.0

φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*	φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*
4	NBRTL+SBL ▼	59	434	2.0	16	525	1.00	525	39	564	☑	1	NBRTL+SBL ▼	66	419	2.0	24	533	1.00	533	25	558	☐
8	SBRTL+NBL ▼	54	155	2.0	39	287	1.00	287	16	303	☐	2	SBRTL+NBL ▼	98	433	2.0	25	581	1.00	581	24	605	☑
6	EBRTL+WBL ▼	13	790	2.0	113	1029	1.00	1029	36	1065	☑	3	EBRTL+WBL ▼	23	723	4.0	60	986	1.00	986	46	1032	☐
2	WBRTL+EBL ▼	47	397	4.0	36	588	1.00	588	113	701	☐	4	WBRTL+EBL ▼	21	893	3.0	46	1052	1.00	1052	60	1112	☑
	▼										☐		▼										☐
	▼										☐		▼										☐

Remarks:

* Critical Volume

TOTAL: **1629**
Level of Service: **F**

V/C: **1.02**

Remarks:

* Critical Volume

TOTAL: **1717**
Level of Service: **F**

V/C: **1.07**

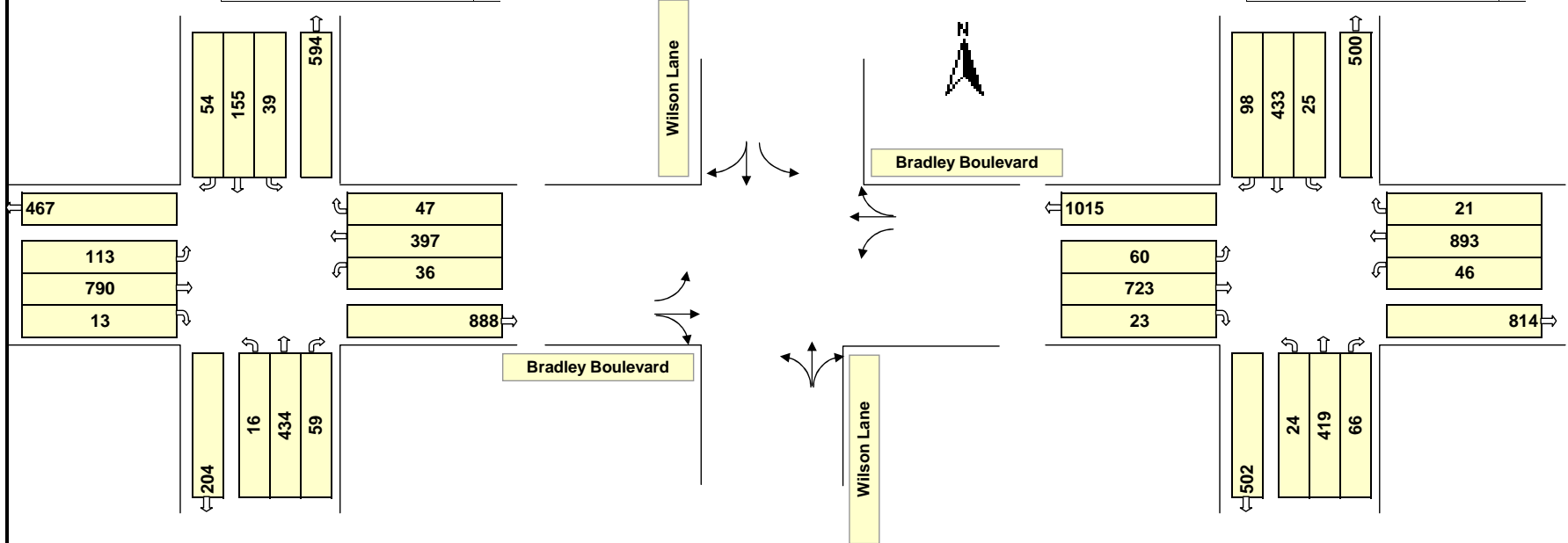


TURNING MOVEMENT SUMMARY AND LEVEL OF SERVICE

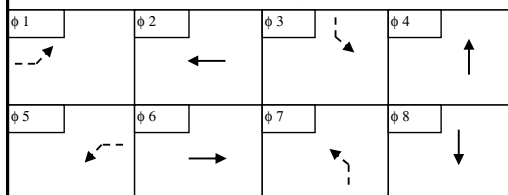
Project: **Bradley Boulevard Bikeway** WR&A W.O. #: **31681-002**
Location: **Bradley Boulevard @ Wilson Lane** County: **Montgomery**
Condition: **Existing (2009)** Computed by: **EFH** Date: **07/21/09**
With Effective Left-Turn Lanes

MORNING PEAK HOUR: 7:45-8:45 AM

EVENING PEAK HOUR: 5:45-6:45 PM



Phasing (φ)



Intersection Control: Signal ☒ Stop ☐ -Way

RTOR: NB ☒ SB ☒ EB ☒ WB ☒

No. of Lanes	Lane Use Factor	Service Level	Critical Lane Volume	Opposing Volume (vhp)	L.T. Factor (PCE)
1	= 1.00	1000 A	1000	199	1.1
2	= 0.55	1150 B	1150	599	2.0
3	= 0.40	1300 C	1300	799	3.0
4	= 0.30	1450 D	1450	999	4.0
Double L.T.	= 0.60	1600 E	1600	1000	5.0

φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*	φ	Movement	Right	Thru	PCE	Left	Volume (1)	Lane Factor (2)	Lane Volume (1)X(2)	Opposing Lefts	Critical Lane Volume	*
4	NBRTL+SBL ▼	59	434	2.0	16	525	1.00	525	39	564	☑	1	NBRTL+SBL ▼	66	419	2.0	24	533	1.00	533	25	558	☑
8	SBTR+NBL ▼	54	155	0.0	0	209	1.00	209	16	225	☐	2	SBTR+NBL ▼	98	433	0.0	0	531	1.00	531	24	555	☐
6	EBTR+WBL ▼	13	790	0.0	0	803	1.00	803	36	839	☑	3	EBTR+WBL ▼	23	723	0.0	0	746	1.00	746	46	792	☐
2	WBTR+EBL ▼	47	397	0.0	0	444	1.00	444	113	557	☐	4	WBTR+EBL ▼	21	893	0.0	0	914	1.00	914	60	974	☑
	▼										☐		▼										☐
	▼										☐		▼										☐

Remarks:

* Critical Volume

TOTAL: **1403**
Level of Service: **D**
V/C: **0.88**

Remarks:

* Critical Volume

TOTAL: **1532**
Level of Service: **E**
V/C: **0.96**

Traffic Study

APPENDIX E

SimTraffic Output

SimTraffic Simulation Summary

AM Peak with Left Turn Lanes

6/25/2009

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvl's	1	1	1	1	1	1
Vehs Entered	3258	3432	3218	3311	3278	3298
Vehs Exited	3271	3403	3228	3308	3284	3299
Starting Vehs	136	133	136	120	131	131
Ending Vehs	123	162	126	123	125	131
Denied Entry Before	1	2	0	3	5	1
Denied Entry After	4	6	1	2	7	4
Travel Distance (mi)	2695	2810	2714	2704	2720	2729
Travel Time (hr)	132.7	152.3	121.0	122.6	126.1	130.9
Total Delay (hr)	50.4	66.6	38.5	40.0	43.1	47.8
Total Stops	3542	4386	3082	3197	3295	3499
Fuel Used (gal)	947.5	1024.6	929.2	927.2	939.9	953.7

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:45					
End Time	8:45					
Total Time (min)	60					
Volumes adjusted by Growth Factors.						
Run Number	1	2	3	4	5	Avg
Vehs Entered	3258	3432	3218	3311	3278	3298
Vehs Exited	3271	3403	3228	3308	3284	3299
Starting Vehs	136	133	136	120	131	131
Ending Vehs	123	162	126	123	125	131
Denied Entry Before	1	2	0	3	5	1
Denied Entry After	4	6	1	2	7	4
Travel Distance (mi)	2695	2810	2714	2704	2720	2729
Travel Time (hr)	132.7	152.3	121.0	122.6	126.1	130.9
Total Delay (hr)	50.4	66.6	38.5	40.0	43.1	47.8
Total Stops	3542	4386	3082	3197	3295	3499
Fuel Used (gal)	947.5	1024.6	929.2	927.2	939.9	953.7

SimTraffic Performance Report
AM Peak with Left Turn Lanes

6/25/2009

1: Wilson Ln & Bradley Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	14.0	2.5	2.5	8.7	27.6
Delay / Veh (s)	99.7	37.5	18.9	34.6	46.8
Total Stops	770	184	235	682	1871
Travel Dist (mi)	154.6	57.5	211.0	145.8	568.9
Travel Time (hr)	19.2	4.5	8.5	12.9	45.0
Avg Speed (mph)	8	13	25	12	13
Fuel Used (gal)	74.9	21.9	58.6	59.9	215.4
HC Emissions (g)	4	1	5	2	13
CO Emissions (g)	1098	392	949	1107	3546
NOx Emissions (g)	13	4	18	10	45
Vehicles Entered	510	234	480	901	2125
Vehicles Exited	499	236	481	900	2116
Hourly Exit Rate	499	236	481	900	2116
Input Volume	509	248	490	916	2163
% of Volume	98	95	98	98	98
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

3: Bradley Blvd & Goldsboro Rd Performance by approach

Approach	EB	WB	NE	All
Total Delay (hr)	6.4	3.9	5.7	16.0
Delay / Veh (s)	22.8	18.9	26.8	22.9
Total Stops	562	439	618	1619
Travel Dist (mi)	337.1	222.9	164.3	724.3
Travel Time (hr)	16.5	10.0	12.0	38.5
Avg Speed (mph)	21	24	17	20
Fuel Used (gal)	104.4	64.3	53.2	222.0
HC Emissions (g)	6	6	2	14
CO Emissions (g)	1718	1784	725	4227
NOx Emissions (g)	22	22	7	51
Vehicles Entered	1015	747	758	2520
Vehicles Exited	1015	747	761	2523
Hourly Exit Rate	1015	747	761	2523
Input Volume	1042	759	754	2555
% of Volume	97	98	101	99
Denied Entry Before	0	0	1	1
Denied Entry After	0	1	3	4

SimTraffic Performance Report
AM Peak with Left Turn Lanes

6/25/2009

Total Network Performance

Total Delay (hr)	47.8
Delay / Veh (s)	52.1
Total Stops	3499
Travel Dist (mi)	2728.6
Travel Time (hr)	130.9
Avg Speed (mph)	21
Fuel Used (gal)	953.7
HC Emissions (g)	72
CO Emissions (g)	23951
NOx Emissions (g)	269
Vehicles Entered	3298
Vehicles Exited	3299
Hourly Exit Rate	3299
Input Volume	9426
% of Volume	35
Denied Entry Before	1
Denied Entry After	4

Queuing and Blocking Report

AM Peak with Left Turn Lanes

6/25/2009

Intersection: 1: Wilson Ln & Bradley Blvd

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR	L	TR
Maximum Queue (ft)	808	98	237	99	328	100	835
Average Queue (ft)	556	40	118	31	153	52	438
95th Queue (ft)	1096	91	211	79	287	105	762
Link Distance (ft)	1612		1287		2293		853
Upstream Blk Time (%)							1
Queuing Penalty (veh)							0
Storage Bay Dist (ft)		75		75		75	
Storage Blk Time (%)		6	21	1	20	4	33
Queuing Penalty (veh)		12	8	5	7	30	37

Intersection: 3: Bradley Blvd & Goldsboro Rd

Movement	EB	EB	EB	WB	WB	WB	NE	NE
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	234	251	218	265	234	174	382	221
Average Queue (ft)	129	135	135	137	50	65	53	143
95th Queue (ft)	208	216	209	242	171	152	210	233
Link Distance (ft)	1840				1574	1574	1119	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		110	110	195				101
Storage Blk Time (%)	11	12	12	5			0	20
Queuing Penalty (veh)	77	38	39	10			2	15

Network Summary

Network wide Queuing Penalty: 280

SimTraffic Simulation Summary PM Peak with Left Turn Lanes

6/25/2009

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	5:20	5:20	5:20	5:20	5:20	5:20
End Time	6:30	6:30	6:30	6:30	6:30	6:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvl	1	1	1	1	1	1
Vehs Entered	4127	4005	4084	4087	4080	4078
Vehs Exited	4020	3949	4035	4082	3985	4014
Starting Vehs	175	205	176	196	180	186
Ending Vehs	282	261	225	201	275	248
Denied Entry Before	3	5	1	3	10	4
Denied Entry After	89	257	80	82	111	124
Travel Distance (mi)	3370	3304	3340	3404	3339	3351
Travel Time (hr)	289.5	330.9	245.6	246.3	260.7	274.6
Total Delay (hr)	188.5	231.9	145.7	144.0	160.5	174.1
Total Stops	6763	6766	5742	5897	6750	6383
Fuel Used (gal)	1482.0	1553.9	1358.4	1383.0	1394.9	1434.4

Interval #0 Information Seeding

Start Time	5:20
End Time	5:30
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:30
End Time	6:30
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	4127	4005	4084	4087	4080	4078
Vehs Exited	4020	3949	4035	4082	3985	4014
Starting Vehs	175	205	176	196	180	186
Ending Vehs	282	261	225	201	275	248
Denied Entry Before	3	5	1	3	10	4
Denied Entry After	89	257	80	82	111	124
Travel Distance (mi)	3370	3304	3340	3404	3339	3351
Travel Time (hr)	289.5	330.9	245.6	246.3	260.7	274.6
Total Delay (hr)	188.5	231.9	145.7	144.0	160.5	174.1
Total Stops	6763	6766	5742	5897	6750	6383
Fuel Used (gal)	1482.0	1553.9	1358.4	1383.0	1394.9	1434.4

1: Wilson Ln & Bradley Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	95.7	16.5	12.1	19.2	143.5
Delay / Veh (s)	874.6	108.2	38.9	88.3	181.6
Total Stops	1748	870	866	779	4263
Travel Dist (mi)	117.8	134.0	462.6	126.7	841.1
Travel Time (hr)	99.8	21.1	25.1	22.8	168.8
Avg Speed (mph)	2	6	18	8	7
Fuel Used (gal)	254.9	75.7	143.2	79.2	553.0
HC Emissions (g)	5	4	7	3	20
CO Emissions (g)	2078	1073	1566	1306	6023
NOx Emissions (g)	14	12	27	12	64
Vehicles Entered	409	556	1118	791	2874
Vehicles Exited	379	542	1120	775	2816
Hourly Exit Rate	379	542	1120	775	2816
Input Volume	509	556	1122	806	2993
% of Volume	74	97	100	96	94
Denied Entry Before	0	0	0	0	0
Denied Entry After	102	0	0	13	115

3: Bradley Blvd & Goldsboro Rd Performance by approach

Approach	EB	WB	NE	All
Total Delay (hr)	3.6	17.5	3.5	24.5
Delay / Veh (s)	16.7	37.5	19.6	28.6
Total Stops	325	1233	530	2088
Travel Dist (mi)	236.8	499.8	138.1	874.7
Travel Time (hr)	10.7	31.0	8.7	50.4
Avg Speed (mph)	22	21	18	21
Fuel Used (gal)	72.0	157.3	43.3	272.6
HC Emissions (g)	6	14	3	23
CO Emissions (g)	1496	4264	812	6572
NOx Emissions (g)	19	48	9	76
Vehicles Entered	770	1677	640	3087
Vehicles Exited	771	1675	635	3081
Hourly Exit Rate	771	1675	635	3081
Input Volume	818	1677	642	3137
% of Volume	94	100	99	98
Denied Entry Before	0	3	1	4
Denied Entry After	0	6	3	9

SimTraffic Performance Report
PM Peak with Left Turn Lanes

6/25/2009

Total Network Performance

Total Delay (hr)	174.1
Delay / Veh (s)	155.0
Total Stops	6383
Travel Dist (mi)	3351.3
Travel Time (hr)	274.6
Avg Speed (mph)	15
Fuel Used (gal)	1434.4
HC Emissions (g)	104
CO Emissions (g)	32920
NOx Emissions (g)	368
Vehicles Entered	4078
Vehicles Exited	4014
Hourly Exit Rate	4014
Input Volume	11867
% of Volume	34
Denied Entry Before	4
Denied Entry After	124

Queuing and Blocking Report
PM Peak with Left Turn Lanes

6/25/2009

Intersection: 1: Wilson Ln & Bradley Blvd

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR	L	TR
Maximum Queue (ft)	1647	98	1127	99	1224	99	821
Average Queue (ft)	1510	21	632	35	607	60	481
95th Queue (ft)	1884	69	1169	81	1064	111	890
Link Distance (ft)	1611		1287		2293		853
Upstream Blk Time (%)	59		2				13
Queuing Penalty (veh)	0		0				0
Storage Bay Dist (ft)		75		75		75	
Storage Blk Time (%)		0	62	2	37	22	32
Queuing Penalty (veh)		0	16	19	17	165	19

Intersection: 3: Bradley Blvd & Goldsboro Rd

Movement	EB	EB	EB	WB	WB	WB	NE	NE
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	165	159	188	280	485	454	149	152
Average Queue (ft)	72	73	89	217	202	187	73	55
95th Queue (ft)	140	141	161	312	441	375	132	107
Link Distance (ft)	1840				1574	1574	1119	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		110	110	195				101
Storage Blk Time (%)	3	3	6	12	5		6	1
Queuing Penalty (veh)	11	5	10	60	32		29	1

Network Summary

Network wide Queuing Penalty: 385

SimTraffic Simulation Summary
 AM Peak (Base) - No Left Turn Lanes

6/26/2009

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvl	1	1	1	1	1	1
Vehs Entered	3101	3268	3072	3133	3111	3138
Vehs Exited	3094	3232	3064	3118	3110	3123
Starting Vehs	171	144	137	131	153	148
Ending Vehs	178	180	145	146	154	161
Denied Entry Before	7	4	22	7	15	10
Denied Entry After	186	165	170	193	190	181
Travel Distance (mi)	2508	2624	2545	2510	2542	2546
Travel Time (hr)	296.1	228.0	249.6	245.6	209.2	245.7
Total Delay (hr)	219.4	147.9	172.2	168.8	131.4	167.9
Total Stops	5806	5184	4781	4232	4586	4918
Fuel Used (gal)	1292.1	1162.6	1196.1	1172.4	1095.9	1183.8

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	3101	3268	3072	3133	3111	3138
Vehs Exited	3094	3232	3064	3118	3110	3123
Starting Vehs	171	144	137	131	153	148
Ending Vehs	178	180	145	146	154	161
Denied Entry Before	7	4	22	7	15	10
Denied Entry After	186	165	170	193	190	181
Travel Distance (mi)	2508	2624	2545	2510	2542	2546
Travel Time (hr)	296.1	228.0	249.6	245.6	209.2	245.7
Total Delay (hr)	219.4	147.9	172.2	168.8	131.4	167.9
Total Stops	5806	5184	4781	4232	4586	4918
Fuel Used (gal)	1292.1	1162.6	1196.1	1172.4	1095.9	1183.8

1: Wilson Ln & Bradley Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	22.3	10.7	6.5	110.7	150.3
Delay / Veh (s)	161.4	164.6	48.3	537.7	275.9
Total Stops	1040	396	444	1529	3409
Travel Dist (mi)	153.4	58.1	213.3	120.9	545.7
Travel Time (hr)	27.6	12.8	12.6	114.1	167.0
Avg Speed (mph)	6	5	17	4	7
Fuel Used (gal)	94.5	42.0	67.8	291.0	495.4
HC Emissions (g)	5	2	6	1	14
CO Emissions (g)	1247	621	1018	1662	4548
NOx Emissions (g)	14	6	19	8	47
Vehicles Entered	508	237	485	741	1971
Vehicles Exited	489	234	487	742	1952
Hourly Exit Rate	489	234	487	742	1952
Input Volume	509	248	490	916	2163
% of Volume	96	94	99	81	90
Denied Entry Before	0	0	0	9	9
Denied Entry After	3	0	0	174	177

3: Bradley Blvd & Goldsboro Rd Performance by approach

Approach	EB	WB	NE	All
Total Delay (hr)	5.2	3.5	5.1	13.8
Delay / Veh (s)	21.5	16.4	24.5	20.8
Total Stops	487	418	596	1501
Travel Dist (mi)	287.3	225.1	162.7	675.1
Travel Time (hr)	13.8	9.6	11.4	34.8
Avg Speed (mph)	21	25	18	21
Fuel Used (gal)	88.3	63.3	51.6	203.3
HC Emissions (g)	6	6	2	14
CO Emissions (g)	1511	1793	709	4014
NOx Emissions (g)	20	22	7	49
Vehicles Entered	876	755	750	2381
Vehicles Exited	876	756	755	2387
Hourly Exit Rate	876	756	755	2387
Input Volume	1042	759	754	2555
% of Volume	84	100	100	93
Denied Entry Before	0	0	1	1
Denied Entry After	0	1	3	4

Total Network Performance

Total Delay (hr)	167.9
Delay / Veh (s)	193.2
Total Stops	4918
Travel Dist (mi)	2545.7
Travel Time (hr)	245.7
Avg Speed (mph)	16
Fuel Used (gal)	1183.8
HC Emissions (g)	71
CO Emissions (g)	24590
NOx Emissions (g)	264
Vehicles Entered	3138
Vehicles Exited	3123
Hourly Exit Rate	3123
Input Volume	9426
% of Volume	33
Denied Entry Before	10
Denied Entry After	181

Queuing and Blocking Report
 AM Peak (Base) - *No Left Turn Lanes*

6/26/2009

Intersection: 1: Wilson Ln & Bradley Blvd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	1076	799	768	878
Average Queue (ft)	748	353	291	869
95th Queue (ft)	1547	718	721	912
Link Distance (ft)	1618	1293	2299	859
Upstream Blk Time (%)	8			56
Queuing Penalty (veh)	0			0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Bradley Blvd & Goldsboro Rd

Movement	EB	EB	EB	WB	WB	WB	NE	NE
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	215	222	210	275	234	113	386	220
Average Queue (ft)	111	116	119	126	46	58	50	129
95th Queue (ft)	182	190	190	227	130	102	185	223
Link Distance (ft)	1840				1574	1574	1119	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		110	110	195				101
Storage Blk Time (%)	7	8	9	3			0	16
Queuing Penalty (veh)	54	25	29	5			1	11

Network Summary

Network wide Queuing Penalty: 125

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	5:20	5:20	5:20	5:20	5:20	5:20
End Time	6:30	6:30	6:30	6:30	6:30	6:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvl	1	1	1	1	1	1
Vehs Entered	3612	3495	3828	3685	3596	3644
Vehs Exited	3334	3336	3593	3544	3363	3434
Starting Vehs	232	273	226	266	227	244
Ending Vehs	510	432	461	407	460	452
Denied Entry Before	3	9	2	3	10	5
Denied Entry After	613	812	349	476	597	571
Travel Distance (mi)	2744	2775	2996	2914	2778	2841
Travel Time (hr)	620.0	795.9	518.5	544.9	594.6	614.8
Total Delay (hr)	536.9	712.1	428.8	457.1	510.3	529.0
Total Stops	14170	16346	13934	13615	14830	14578
Fuel Used (gal)	2096.4	2518.4	1920.8	1961.3	2043.3	2108.0

Interval #0 Information Seeding

Start Time	5:20
End Time	5:30
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:30
End Time	6:30
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	3612	3495	3828	3685	3596	3644
Vehs Exited	3334	3336	3593	3544	3363	3434
Starting Vehs	232	273	226	266	227	244
Ending Vehs	510	432	461	407	460	452
Denied Entry Before	3	9	2	3	10	5
Denied Entry After	613	812	349	476	597	571
Travel Distance (mi)	2744	2775	2996	2914	2778	2841
Travel Time (hr)	620.0	795.9	518.5	544.9	594.6	614.8
Total Delay (hr)	536.9	712.1	428.8	457.1	510.3	529.0
Total Stops	14170	16346	13934	13615	14830	14578
Fuel Used (gal)	2096.4	2518.4	1920.8	1961.3	2043.3	2108.0

1: Wilson Ln & Bradley Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	80.8	88.5	66.7	119.6	355.6
Delay / Veh (s)	689.7	696.9	269.4	712.7	539.0
Total Stops	1725	1640	3662	1226	8253
Travel Dist (mi)	127.5	111.5	367.7	98.2	704.9
Travel Time (hr)	85.2	92.3	77.0	122.3	376.9
Avg Speed (mph)	2	2	5	3	3
Fuel Used (gal)	223.8	236.8	260.3	303.2	1024.0
HC Emissions (g)	5	6	8	6	25
CO Emissions (g)	1891	2008	2621	2358	8877
NOx Emissions (g)	14	14	33	13	75
Vehicles Entered	441	463	900	612	2416
Vehicles Exited	404	453	883	597	2337
Hourly Exit Rate	404	453	883	597	2337
Input Volume	509	556	1122	806	2993
% of Volume	79	81	79	74	78
Denied Entry Before	0	0	0	1	1
Denied Entry After	72	92	0	199	363

3: Bradley Blvd & Goldsboro Rd Performance by approach

Approach	EB	WB	NE	All
Total Delay (hr)	2.8	121.6	6.0	130.5
Delay / Veh (s)	16.7	304.2	34.0	174.5
Total Stops	261	3088	651	4000
Travel Dist (mi)	188.9	430.3	138.8	758.0
Travel Time (hr)	8.5	133.3	11.3	153.1
Avg Speed (mph)	22	6	14	9
Fuel Used (gal)	57.1	384.7	49.9	491.7
HC Emissions (g)	5	17	4	26
CO Emissions (g)	1203	5423	937	7563
NOx Emissions (g)	16	48	10	74
Vehicles Entered	614	1480	643	2737
Vehicles Exited	614	1397	637	2648
Hourly Exit Rate	614	1397	637	2648
Input Volume	818	1677	642	3137
% of Volume	75	83	99	84
Denied Entry Before	0	3	1	4
Denied Entry After	0	205	3	208

Total Network Performance

Total Delay (hr)	529.0
Delay / Veh (s)	538.3
Total Stops	14578
Travel Dist (mi)	2841.3
Travel Time (hr)	614.8
Avg Speed (mph)	7
Fuel Used (gal)	2108.0
HC Emissions (g)	103
CO Emissions (g)	33460
NOx Emissions (g)	339
Vehicles Entered	3644
Vehicles Exited	3434
Hourly Exit Rate	3434
Input Volume	11867
% of Volume	29
Denied Entry Before	5
Denied Entry After	571

Queuing and Blocking Report
PM Peak (Base) - No Left Turn Lanes

6/26/2009

Intersection: 1: Wilson Ln & Bradley Blvd

Movement	EB	WB	NB	B2	SB
Directions Served	LTR	LTR	LTR	T	LTR
Maximum Queue (ft)	1651	1322	2381	1878	896
Average Queue (ft)	1492	1282	2358	1523	843
95th Queue (ft)	1944	1453	2508	2425	1035
Link Distance (ft)	1619	1293	2299	1840	859
Upstream Blk Time (%)	49	66	46	20	59
Queuing Penalty (veh)	0	0	514	223	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Bradley Blvd & Goldsboro Rd

Movement	EB	EB	EB	WB	WB	WB	NE	NE
Directions Served	T	T	TR	L	T	T	L	R
Maximum Queue (ft)	161	150	169	280	1596	1589	572	208
Average Queue (ft)	65	64	77	242	898	840	154	73
95th Queue (ft)	136	131	148	346	1973	1843	516	176
Link Distance (ft)	1840				1574	1574	1119	
Upstream Blk Time (%)					17	6	0	
Queuing Penalty (veh)					0	0	0	
Storage Bay Dist (ft)		110	110	195				101
Storage Blk Time (%)	2	3	5	12	52		23	2
Queuing Penalty (veh)	11	4	7	58	355		117	3

Network Summary

Network wide Queuing Penalty: 1292

Traffic Study

APPENDIX F

Crash Data

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Bradley Blvd from Wilson La to GoldBoro Rd (2003-07)

Total Accidents: 57

Vehicle Occupants

Injured: 32
Killed: 0

Pedestrians

Injured: 4
Killed: 0

Harmful Events (Top 2)

Other Vehicle 41
Fixed Object 9

Accident Severity

Not injured 26
Possible Injury 6
Injured 10
Disabled 2
Fatal 0

Intersection Related

Non-intersection 11
Intersection 38
Intersection-related 8
Driveway-Access 0
Non-intersection 0
Intersection 0
Intersection-related 0
Driveway-Access 0
Other 0
Unknown 0

Contributing Circumstances (Top 2)

Failed to give full time/attention 21
Failed to yield right-of-way 15

Time Of Day

6:00 a.m. - 10:00 a.m.: 4 10:00 a.m. - 4:00 p.m.: 20 4:00 p.m. - 8:00 p.m.: 16 8:00 p.m. - 6:00 a.m.: 10

Weather

N/A 0
Clear / Cloudy 44
Foggy 0
Raining 13
Snow / Sleet 0
Severe winds 0
Other 0
Unknown 0

Road Surface

N/A 0
Wet 19
Dry 38
Snow 0
Ice 0
Mud 0
Other 0
Unknown 0

Illumination

N/A 0
Daylight 36
Dawn / Dusk 2
Dark / Lights on 17
Dark / No Lights 2
Other 0
Unknown 0

Collision Type

DATE: 2/2/2003

HOUR 1 AM

REPORT NUMBER: 9730958

Location

Route: MD 191 Mile: 5.42 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Non-intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Off Road

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Had been drinking

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Wet Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and level

Causes:

- 1) Under influence of alcohol
- 2) What is Code 00?

DATE: 2/12/2003

HOUR 3 PM

REPORT NUMBER: 9731402

Location

Route: MD 191 Mile: 4.92 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 14 Harmful Events: 1) Other Vehicle
2) N/A

Vehicle #1

Direction: West
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Pickup Truck
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 3/7/2003

HOUR 1 PM

REPORT NUMBER: 9731614

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: W1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Starting from Traffic Lane
Drvr Cond: Apparently normal

Vehicle #2

Direction: West
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) Failed to give full time/attention

DATE: 8/27/2003

HOUR 9 PM

REPORT NUMBER: 9731634

Location

Route: MD 191 Mile: 4.72 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection-related

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
Rear-End 2) Fixed Object

Vehicle #1

Direction: South
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Recreational Vehicle
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Wet Light: Dark / Li Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Following too closely
- 2) What is Code 00?

DATE: 9/30/2003

HOUR 8 AM

REPORT NUMBER: 9731638

Location

Route: MD 191 Mile: 5.31 County: 15 Municipality:
Name: No Match Lane: N1 Intersection-related

Severity

Injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 5 Harmful Events: 1) Other Vehicle
Rear-End into Left Turning Vehicle 2) N/A

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 10/13/2003

HOUR 10 PM

REPORT NUMBER: 9735295

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: W1 Non-intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) N/A

Vehicle #1

Direction: West
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 11/12/2003

HOUR 8 AM

REPORT NUMBER: 9731342

Location

Route: MD 191 Mile: 4.84 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Skidding
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Automobile
Movement: Stopping in Traffic Lane
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Following too closely
- 2) What is Code 00?

DATE: 12/8/2003

HOUR 8 AM

REPORT NUMBER: 9988048

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 2 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
Type: Pickup Truck
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 1/15/2004

HOUR 9 PM

REPORT NUMBER: 9746204

Location

Route: MD 191 Mile: 4.79 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / N Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 2/3/2004 HOUR 6 PM

REPORT NUMBER: 9987780

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.84	County: 15 Lane: W1	Municipality: Intersection-related
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 3 Rear-End	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: West Type: Station Wagon Movement: Slowing / Stopping Dvr Cond: Apparently normal	Vehicle #2	Direction: West Type: Automobile Movement: Slowing / Stopping Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Wet Rd Condition: No defects	Light: Dark / Li Road Character: Straight and grade	Traffic Signal: N
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 2/28/2004 HOUR 4 PM

REPORT NUMBER: 9738235

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: S2	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 2 Left Turn into Opposing Traffic	Harmful Events: 1) Other Vehicle 2) Fixed Object		
Vehicle #1	Direction: North Type: Automobile Movement: Making Left Turn Dvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Automobile Movement: Moving at Constant Speed Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Curve and grade	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 3/24/2004 HOUR 8 AM

REPORT NUMBER: 9241569

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: S1	Municipality: Intersection
Severity	Disabled Vehicles Involved: 3	Occupants Killed: 0 Occupants Injured: 1	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 3 Rear-End	Harmful Events: 1) Other Vehicle 2) Other Vehicle		
Vehicle #1	Direction: South Type: Automobile Movement: Starting from Traffic Lane Dvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Automobile Movement: Stopping in Traffic Lane Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 4/27/2004 HOUR 4 PM REPORT NUMBER: 41490

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: S3	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 1 Head-On	Harmful Events: 1) Other Vehicle 2) Unknown		
Vehicle #1	Direction: North Type: Unknown Movement: Moving at Constant Speed Drvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Automobile Movement: Moving at Constant Speed Drvr Cond: Apparently normal	
Conditions:	Weather: Raining Spd Lmt: 30	Surface: Wet Rd Condition: No defects	Light: Daylight Road Character: Straight and grade	Traffic Signal: Y
Causes:	1) Failed to yield right-of-way 2) What is Code 00?			

DATE: 4/28/2004 HOUR 3 PM REPORT NUMBER: 41491

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: S3	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 4 Rear-End into Right Turning Vehicle	Harmful Events: 1) Other Vehicle 2) Unknown		
Vehicle #1	Direction: South Type: Station Wagon Movement: Slowing / Stopping Drvr Cond: Apparently normal	Vehicle #2	Direction: East Type: Pickup Truck Movement: Making Right Turn Drvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Wet Rd Condition: No defects	Light: Daylight Road Character: Straight and grade	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) Failed to give full time/attention			

DATE: 6/22/2004 HOUR 5 PM REPORT NUMBER: 9762369

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: S1	Municipality: Intersection
Severity	Not injured Vehicles Involved: 1	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 17 Single Vehicle	Harmful Events: 1) Overturn 2) Spilled Cargo		
Vehicle #1	Direction: West Type: Single Truck 2 Axles Movement: Making Left Turn Drvr Cond: Apparently normal	Vehicle #2	Direction: N/A Type: N/A Movement: N/A Drvr Cond: N/A	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) 2) What is Code 00?			

DATE: 10/6/2004 HOUR 4 PM REPORT NUMBER: 41473

Location Route: MD 191 Mile: 4.92 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events Collision Type: 2 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1 Direction: West
Type: Recreational Vehicle
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2 Direction:: East
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions: Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes: 1) Failed to yield right-of-way
2) What is Code 00?

DATE: 1/7/2005 HOUR 5 PM REPORT NUMBER: 0510269803

Location Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: E2 Intersection

Severity Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Fixed Object

Vehicle #1 Direction: East
Type: Single Truck 2 Axles
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2 Direction:: West
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions: Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and hillcre

Causes: 1) Failed to yield right-of-way
2) What is Code 00?

DATE: 1/11/2005 HOUR 1 PM REPORT NUMBER: 0510269704

Location Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 2 Pedestrians Injured: 0

Events Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1 Direction: North
Type: Automobile
Movement: Accelerating
Drvr Cond: Apparently normal

Vehicle #2 Direction:: South
Type: Van
Movement: Making Left Turn
Drvr Cond: Apparently normal

Conditions: Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Curve and hillcrest

Causes: 1) Failed to give full time/attention
2) What is Code 00?

DATE: 1/12/2005

HOUR 12 Noon

REPORT NUMBER: 0510270238

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: E1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Fixed Object

Vehicle #1

Direction: East
Type: Recreational Vehicle
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: West
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 1/13/2005

HOUR 11 AM

REPORT NUMBER: 0509988401

Location

Route: MD 191 Mile: 5.48 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Vehicles Involved: 4 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 3 Pedestrians Injured: 0

Events

Collision Type: 06 Harmful Events: 1) Other Vehicle
Sideswipe Opposing Vehicle 2) Other Vehicle

Vehicle #1

Direction: North
Type: School Bus
Movement: Skidding
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Pickup Truck
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 1/31/2005

HOUR 3 PM

REPORT NUMBER: 0510039782

Location

Route: MD 191 Mile: 5.46 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection-related

Severity

Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Fixed Object

Vehicle #1

Direction: N/A
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: N/A
Movement: N/A
Dvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Vision Obstructed
- 2) What is Code 00?

DATE: 4/23/2005

HOUR 4 PM

REPORT NUMBER: 0510543353

Location

Route: MD 191 Mile: 4.89 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type: Recreational Vehicle
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 5/24/2005

HOUR 3 PM

REPORT NUMBER: 0510119188

Location

Route: MD 191 Mile: 5.08 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Vehicles Involved: 3 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: South
Type: Recreational Vehicle
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Recreational Vehicle
Movement: Stopping in Traffic Lane
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 7/8/2005

HOUR 3 PM

REPORT NUMBER: 0510039811

Location

Route: MD 191 Mile: 4.92 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 7/20/2005

HOUR 4 AM

REPORT NUMBER: 0510626652

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Other Object

Vehicle #1

Direction: N/A
Type: Automobile
Movement: Unknown
Drvr Cond: Had been drinking

Vehicle #2

Direction: South
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 10/2/2005

HOUR 12 MN

REPORT NUMBER: 0510128429

Location

Route: MD 191 Mile: 4.84 County: 15 Municipality:
Name: BRADLEY BLVD Lane: U9 Intersection

Severity

Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) Other Object

Vehicle #1

Direction: N/A
Type: Automobile
Movement: Making Right Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 10/30/2005

HOUR 10 AM

REPORT NUMBER: 0510540664

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Fixed Object

Vehicle #1

Direction: South
Type: Recreational Vehicle
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Recreational Vehicle
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/8/2005 HOUR 8 PM

REPORT NUMBER: 0510543292

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
Type: Station Wagon
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 11/23/2005 HOUR 10 AM

REPORT NUMBER: 0510543730

Location

Route: MD 191 Mile: 5.08 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Recreational Vehicle
Movement: Stopping in Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 1/29/2006 HOUR 2 PM

REPORT NUMBER: 10688001

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection-related

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type: Automobile
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Automobile
Movement: Stopping in Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Too fast for conditions
- 2) What is Code 00?

DATE: 3/27/2006

HOUR 7 PM

REPORT NUMBER: 10689794

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 1

Events

Collision Type: 17 Harmful Events: 1) Pedestrian
Single Vehicle 2) Unknown

Vehicle #1

Direction: West
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) What is Code 00?
- 2) What is Code 00?

DATE: 3/28/2006

HOUR 6 PM

REPORT NUMBER: 10689829

Location

Route: MD 191 Mile: 5.09 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Non-intersection

Severity

Possible Injury
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 88 Harmful Events: 1) What is Code 20?
Other 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Making U-Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type:
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 4/14/2006

HOUR 12 Noon

REPORT NUMBER: 10690369

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Not injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
Type:
Movement: Making Left Turn
Drvr Cond: Unknown

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 4/16/2006

HOUR 5 PM

REPORT NUMBER: 10690421

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction:: South
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 4/24/2006

HOUR 6 PM

REPORT NUMBER: 10690713

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 14 Harmful Events: 1) Other Vehicle
2) N/A

Vehicle #1

Direction: West
Type:
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction:: North
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 6/1/2006

HOUR 9 PM

REPORT NUMBER: 10691932

Location

Route: MD 191 Mile: 5.06 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection-related

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Other Non-Collision
Single Vehicle 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction:: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1)
- 2) What is Code 00?

DATE: 6/20/2006

HOUR 1 PM

REPORT NUMBER: 10692511

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S2 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 13 Harmful Events: 1) Other Vehicle
Turning Left into Opposing Traffic 2) Other Vehicle

Vehicle #1

Direction: West
Type: Single Truck 3 Axles
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 7/6/2006

HOUR 5 PM

REPORT NUMBER: 10692989

Location

Route: MD 191 Mile: 5.05 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type: Station Wagon
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type:
Movement: Stopping in Traffic Lane
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dawn / D Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Following too closely
- 2) What is Code 00?

DATE: 7/14/2006

HOUR 2 PM

REPORT NUMBER: 10693214

Location

Route: MD 191 Mile: 4.84 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 01 Harmful Events: 1) Other Vehicle
Head-On 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently asleep

Vehicle #2

Direction: North
Type:
Movement: Stopping in Traffic Lane
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Fell asleep / Fainted, etc.
- 2) What is Code 00?

DATE: 8/1/2006 HOUR 7 AM

REPORT NUMBER: 10693771

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 1

Events

Collision Type: 17 Harmful Events: 1) Bicycle
Single Vehicle 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) What is Code 00?
- 2) What is Code 00?

DATE: 8/30/2006 HOUR 9 PM

REPORT NUMBER: 10694639

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: South
Type:
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/7/2006 HOUR 6 PM

REPORT NUMBER: 10694923

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N2 Intersection

Severity

Injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 1

Events

Collision Type: 17 Harmful Events: 1) Bicycle
Single Vehicle 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/18/2006

HOUR 9 AM

REPORT NUMBER: 10695251

Location

Route: MD 191 Mile: 5.24 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Non-intersection

Severity

Injured
Vehicles Involved: 3 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Other Vehicle

Vehicle #1

Direction: South
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Slowing / Stopping
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to give full time/attention
- 2) Failed to give full time/attention

DATE: 11/8/2006

HOUR 3 AM

REPORT NUMBER: 10127795

Location

Route: MD 191 Mile: 5.37 County: 15 Municipality:
Name: BRADLEY BLVD Lane: U9 Non-intersection

Severity

Not injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) N/A

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 11/8/2006

HOUR 6 AM

REPORT NUMBER: 10697067

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dawn / D Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/17/2006

HOUR 2 PM

REPORT NUMBER: 10697475

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: W3 Intersection

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 4 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) Fixed Object

Vehicle #1

Direction: West
Type: Station Wagon
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Pickup Truck
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 45 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 11/17/2006

HOUR 6 AM

REPORT NUMBER: 10697528

Location

Route: MD 191 Mile: 5.37 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 3 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type: Station Wagon
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Station Wagon
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Following too closely
- 2) What is Code 00?

DATE: 7/27/2007

HOUR 10 AM

REPORT NUMBER: 10708329

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection-related

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Curve and grade

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/25/2007

HOUR 10 PM

REPORT NUMBER: 10710153

Location

Route: MD 191 Mile: 4.92 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Non-intersection

Severity

Injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 88 Harmful Events: 1) Fixed Object
Other 2) Fixed Object

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: Automobile
Movement: Parked
Dvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 25 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 12/18/2007

HOUR 1 PM

REPORT NUMBER: 10712968

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Not injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 7/24/2007

HOUR 4 PM

REPORT NUMBER: 10708248

Location

Route: MD 191 Mile: 5.53 County: 15 Municipality:
Name: BRADLEY BLVD Lane: ER Intersection

Severity

Not injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) N/A

Vehicle #1

Direction: North
Type: Van
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Motorcycle
Movement: Slowing / Stopping
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 12/19/2007

HOUR 5 PM

REPORT NUMBER: 10712979

Location

Route: MD 191 Mile: 5.39 County: 15 Municipality:
Name: BRADLEY BLVD Lane: NS Intersection

Severity

Injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 1

Events

Collision Type: 17 Harmful Events: 1) Bicycle
Single Vehicle 2) N/A

Vehicle #1

Direction: West
Type: Automobile
Movement: Unknown
Drvr Cond: Apparently normal

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / N Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) What is Code 00?
- 2) What is Code 00?

DATE: 2/16/2007

HOUR 6 PM

REPORT NUMBER: 10700467

Location

Route: MD 191 Mile: 5.01 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Not injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1

Direction: East
Type: Automobile
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: West
Type:
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / Li Traffic Signal: N
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 6/13/2007

HOUR 11 AM

REPORT NUMBER: 10707205

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Accelerating
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 6/7/2007 HOUR 6 AM REPORT NUMBER: 10706868

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 5.53	County: 15 Lane: N1	Municipality: Intersection
Severity	Possible Injury Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 1	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 02 Left Turn into Opposing Traffic	Harmful Events: 1) Other Vehicle 2) Fixed Object		
Vehicle #1	Direction: North Type: Automobile Movement: Moving at Constant Speed Dvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Automobile Movement: Making Left Turn Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Curve and grade	Traffic Signal: Y
Causes:	1) Failed to obey traffic signal 2) What is Code 00?			

DATE: 12/17/2007 HOUR 2 PM REPORT NUMBER: 10712933

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.78	County: 15 Lane: N1	Municipality: Intersection-related
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 03 Rear-End	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: North Type: Single Truck 2 Axles Movement: Starting from Traffic Lane Dvr Cond: Apparently normal	Vehicle #2	Direction: North Type: Station Wagon Movement: Stopping in Traffic Lane Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 1/4/2003 HOUR 3 AM REPORT NUMBER: 9721027

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.86	County: 15 Lane: S1	Municipality: Non-intersection
Severity	Not injured Vehicles Involved: 1	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 17 Single Vehicle	Harmful Events: 1) Fixed Object 2) Other Object		
Vehicle #1	Direction: Unknown Type: Automobile Movement: Unknown Dvr Cond: Unknown	Vehicle #2	Direction: N/A Type: N/A Movement: N/A Dvr Cond: N/A	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Wet Rd Condition: No defects	Light: Dark / Li Road Character: Curve and level	Traffic Signal: N
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Bradley Blvd and Wilson Lane (2003-7)

Total Accidents: 19

Vehicle Occupants

Injured: 12	Injured: 1
Killed: 0	Killed: 0

Pedestrians

Harmful Events (Top 2)

Other Vehicle	17
Fixed Object	1
Pedestrian	1

Accident Severity

Not injured	7
Possible Injury	5
Injured	2
Disabled	3
Fatal	0

Intersection Related

Non-intersection	0
Intersection	14
Intersection-related	4
Driveway-Access	1
Non-intersection	0
Intersection	0
Intersection-related	0
Driveway-Access	0
Other	0
Unknown	0

Contributing Circumstances (Top 2)

Failed to give full time/attention	6
Failed to obey traffic signal	4

Time Of Day

6:00 a.m. - 10:00 a.m.: 1	10:00 a.m. - 4:00 p.m.: 9	4:00 p.m. - 8:00 p.m.: 5	8:00 p.m. - 6:00 a.m.: 3
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Weather

N/A	0
Clear / Cloudy	15
Foggy	0
Raining	4
Snow / Sleet	0
Severe winds	0
Other	0
Unknown	0

Road Surface

N/A	0
Wet	6
Dry	13
Snow	0
Ice	0
Mud	0
Other	0
Unknown	0

Illumination

N/A	0
Daylight	14
Dawn / Dusk	1
Dark / Lights on	4
Dark / No Lights	0
Other	0
Unknown	0

Collision Type

DATE: 3/7/2003 HOUR 1 PM REPORT NUMBER: 9731614

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: W1	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 11 Right Angle Collision	Harmful Events: 1) Other Vehicle 2) Unknown		
Vehicle #1	Direction: North Type: Automobile Movement: Starting from Traffic Lane Dvr Cond: Apparently normal	Vehicle #2	Direction: West Type: Van Movement: Moving at Constant Speed Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) Failed to give full time/attention			

DATE: 7/30/2003 HOUR 2 PM REPORT NUMBER: 9768296

Location	Route: MD 188 Name: WILSON LA	Mile: 2.34	County: 15 Lane: N1	Municipality: Intersection
Severity	Disabled Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 1	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 11 Right Angle Collision	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: East Type: Van Movement: Moving at Constant Speed Dvr Cond: Apparently normal	Vehicle #2	Direction: North Type: Van Movement: Moving at Constant Speed Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to give full time/attention 2) What is Code 00?			

DATE: 8/27/2003 HOUR 9 PM REPORT NUMBER: 9731634

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.72	County: 15 Lane: S1	Municipality: Intersection-related
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 3 Rear-End	Harmful Events: 1) Other Vehicle 2) Fixed Object		
Vehicle #1	Direction: South Type: Automobile Movement: Slowing / Stopping Dvr Cond: Apparently normal	Vehicle #2	Direction: South Type: Recreational Vehicle Movement: Slowing / Stopping Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 35	Surface: Wet Rd Condition: No defects	Light: Dark / Li Road Character: Straight and grade	Traffic Signal: Y
Causes:	1) Following too closely 2) What is Code 00?			

DATE: 9/19/2003

HOUR 5 PM

REPORT NUMBER: 9241808

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
Name: WILSON LA Lane: E1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Automobile
Movement: Starting from Traffic Lane
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Automobile
Movement: Starting from Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Wet Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) Failed to give full time/attention

DATE: 3/24/2004

HOUR 8 AM

REPORT NUMBER: 9241569

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 3 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
Rear-End 2) Other Vehicle

Vehicle #1

Direction: South
Type: Automobile
Movement: Starting from Traffic Lane
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Stopping in Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/14/2004

HOUR 1 PM

REPORT NUMBER: 9714638

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
Name: WILSON LA Lane: W1 Intersection-related

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 14 Harmful Events: 1) Other Vehicle
2) Unknown

Vehicle #1

Direction: South
Type: Van
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: West
Type: Recreational Vehicle
Movement: Stopping in Traffic Lane
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 11/18/2004

HOUR 1 PM

REPORT NUMBER:

9240779

Location

Route: MD 188
Name: WILSON LA

Mile: 2.34

County: 15
Lane: E1

Municipality:
Intersection

Severity

Possible Injury

Occupants Killed: 0

Pedestrians Killed: 0

Vehicles Involved: 2

Occupants Injured: 2

Pedestrians Injured: 0

Events

Collision Type: 11
Right Angle Collision

Harmful Events: 1) Other Vehicle
2) Fixed Object

Vehicle #1

Direction: East
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Recreational Vehicle
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy
Spd Lmt: 30

Surface: Dry
Rd Condition: No defects

Light: Daylight Traffic Signal: Y
Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 10/30/2005

HOUR 10 AM

REPORT NUMBER: 0510540664

Location

Route: MD 191
Name: BRADLEY BLVD

Mile: 4.71

County: 15
Lane: S1

Municipality:
Intersection

Severity

Vehicles Involved: 2

Occupants Killed: 0

Pedestrians Killed: 0

Occupants Injured: 2

Pedestrians Injured: 0

Events

Collision Type: 02
Left Turn into Opposing Traffic

Harmful Events: 1) Other Vehicle
2) Fixed Object

Vehicle #1

Direction: South
Type: Recreational Vehicle
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Recreational Vehicle
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy
Spd Lmt:

Surface: Dry
Rd Condition: No defects

Light: Daylight Traffic Signal: Y
Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/8/2005

HOUR 8 PM

REPORT NUMBER: 0510543292

Location

Route: MD 191
Name: BRADLEY BLVD

Mile: 4.71

County: 15
Lane: N1

Municipality:
Intersection

Severity

Vehicles Involved: 2

Occupants Killed: 0

Pedestrians Killed: 0

Occupants Injured: 0

Pedestrians Injured: 0

Events

Collision Type: 02
Left Turn into Opposing Traffic

Harmful Events: 1) Other Vehicle
2) N/A

Vehicle #1

Direction: North
Type: Station Wagon
Movement: Making Left Turn
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Raining
Spd Lmt:

Surface: Wet
Rd Condition: No defects

Light: Dark / Li Traffic Signal: Y
Road Character: Straight and level

Causes:

- 1) Improper turn
- 2) What is Code 00?

DATE: 1/29/2006 HOUR 2 PM

REPORT NUMBER: 10688001

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: N1	Municipality: Intersection-related
Severity	Possible Injury Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 1	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 03 Rear-End	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: North Type: Automobile Movement: Slowing / Stopping Dvr Cond: Apparently normal	Vehicle #2	Direction: North Type: Movement: Stopping in Traffic Lane Dvr Cond: Apparently normal	
Conditions:	Weather: Raining Spd Lmt: 35	Surface: Wet Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Too fast for conditions 2) What is Code 00?			

DATE: 3/27/2006 HOUR 7 PM

REPORT NUMBER: 10689794

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: N1	Municipality: Intersection
Severity	Injured Vehicles Involved: 1	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 1	
Events	Collision Type: 17 Single Vehicle	Harmful Events: 1) Pedestrian 2) Unknown		
Vehicle #1	Direction: West Type: Automobile Movement: Slowing / Stopping Dvr Cond: Apparently normal	Vehicle #2	Direction: N/A Type: N/A Movement: N/A Dvr Cond: N/A	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Dark / Li Road Character: Straight and level	Traffic Signal: N
Causes:	1) What is Code 00? 2) What is Code 00?			

DATE: 4/14/2006 HOUR 12 Noon

REPORT NUMBER: 10690369

Location	Route: MD 191 Name: BRADLEY BLVD	Mile: 4.71	County: 15 Lane: S1	Municipality: Intersection
Severity	Not injured Vehicles Involved: 2	Occupants Killed: 0 Occupants Injured: 0	Pedestrians Killed: 0 Pedestrians Injured: 0	
Events	Collision Type: 02 Left Turn into Opposing Traffic	Harmful Events: 1) Other Vehicle 2) N/A		
Vehicle #1	Direction: North Type: Movement: Making Left Turn Dvr Cond: Unknown	Vehicle #2	Direction: South Type: Automobile Movement: Moving at Constant Speed Dvr Cond: Apparently normal	
Conditions:	Weather: Clear / Cloudy Spd Lmt: 30	Surface: Dry Rd Condition: No defects	Light: Daylight Road Character: Straight and level	Traffic Signal: Y
Causes:	1) Failed to yield right-of-way 2) What is Code 00?			

DATE: 4/16/2006

HOUR 5 PM

REPORT NUMBER: 10690421

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 7/28/2006

HOUR 6 PM

REPORT NUMBER: 10693745

Location

Route: MD 188 Mile: 2.33 County: 15 Municipality:
Name: WILSON LA Lane: E1 Intersection-related

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: East
Type: Automobile
Movement: Moving at Constant Speed
Drvr Cond: Had been drinking

Vehicle #2

Direction: East
Type: Station Wagon
Movement: Stopping in Traffic Lane
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: N
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Under influence of alcohol
- 2) What is Code 00?

DATE: 8/30/2006

HOUR 9 PM

REPORT NUMBER: 10694639

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
Rear-End 2) Unknown

Vehicle #1

Direction: South
Type:
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Slowing / Stopping
Drvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 11/8/2006

HOUR 6 AM

REPORT NUMBER: 10697067

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Injured
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
Left Turn into Opposing Traffic 2) Unknown

Vehicle #1

Direction: North
Type: Automobile
Movement: Making Left Turn
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dawn / D Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/17/2006

HOUR 2 PM

REPORT NUMBER: 10697475

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: W3 Intersection

Severity

Possible Injury
Vehicles Involved: 4 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) Fixed Object

Vehicle #1

Direction: West
Type: Station Wagon
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: North
Type: Pickup Truck
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 45 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

DATE: 7/23/2007

HOUR 7 PM

REPORT NUMBER: 10708252

Location

Route: MD 191 Mile: 4.7 County: 15 Municipality:
Name: BRADLEY BLVD Lane: NO Driveway-Access

Severity

Not injured
Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) N/A

Vehicle #1

Direction: North
Type:
Movement: Moving at Constant Speed
Dvr Cond: Had been drinking

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Dvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Under influence of alcohol
- 2) What is Code 00?

DATE: 6/13/2007

HOUR 11 AM

REPORT NUMBER: 10707205

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled
Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Van
Movement: Moving at Constant Speed
Drvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Accelerating
Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 1 of 2

DATE: 7/30/2003

HOUR 2 PM

REPORT NUMBER: 9768298

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
 Name: WILSON LA Lane: N1 Intersection

Severity

Disabled
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) N/A

Vehicle #1

Direction: East
 Type: Van
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Vehicle #2

Direction: North
 Type: Van
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 9/19/2003

HOUR 5 PM

REPORT NUMBER: 9241808

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
 Name: WILSON LA Lane: E1 Intersection

Severity

Not Injured
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) N/A

Vehicle #1

Direction: East
 Type: Automobile
 Movement: Starting from Traffic Lane
 Dvr Cond: Apparently normal

Vehicle #2

Direction: North
 Type: Automobile
 Movement: Starting from Traffic Lane
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Wet Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) Failed to give full time/attention

DATE: 9/14/2004

HOUR 1 PM

REPORT NUMBER: 9714638

Location

Route: MD 188 Mile: 2.34 County: 15 Municipality:
 Name: WILSON LA Lane: W1 Intersection-related

Severity

Possible Injury
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 14 Harmful Events: 1) Other Vehicle
 2) Unknown

Vehicle #1

Direction: South
 Type: Van
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2

Direction: West
 Type: Recreational Vehicle
 Movement: Stopping in Traffic Lane
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section**AIMS Accident Report Extract****Goldsboro Rd and Bradley Blvd (2003-07)****Total Accidents: 2****Vehicle Occupants**

Injured: 3	Injured: 0
Killed: 0	Killed: 0

Pedestrians**Harmful Events (Top 2)**

Fixed Object	1
Other Vehicle	1

Accident Severity

Not injured	0
Possible Injury	0
Injured	0
Disabled	0
Fatal	0

Intersection Related

Non-intersection	1
Intersection	0
Intersection-related	1
Driveway-Access	0
Non-intersection	0
Intersection	0
Intersection-related	0
Driveway-Access	0
Other	0
Unknown	0

Contributing Circumstances (Top 2)

Severe crosswinds	1
Failed to give full time/attention	1

Time Of Day

6:00 a.m. - 10:00 a.m.: 0	10:00 a.m. - 4:00 p.m.: 1	4:00 p.m. - 8:00 p.m.: 0	8:00 p.m. - 6:00 a.m.: 1
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Weather

N/A	0
Clear / Cloudy	1
Foggy	0
Raining	0
Snow / Sleet	1
Severe winds	0
Other	0
Unknown	0

Road Surface

N/A	0
Wet	1
Dry	0
Snow	1
Ice	0
Mud	0
Other	0
Unknown	0

Illumination

N/A	0
Daylight	1
Dawn / Dusk	0
Dark / Lights on	1
Dark / No Lights	0
Other	0
Unknown	0

Collision Type

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 1 of 1

DATE: 1/19/2005

HOUR 1 PM

REPORT NUMBER: 0509241566

Location

Route: MD 614 Mile: 1.98 County: 15 Municipality:
 Name: GOLDSBORO RD Lane: W1 Non-intersection

Severity

Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 3 Pedestrians Injured: 0

Events

Collision Type: 01 Harmful Events: 1) Other Vehicle
 Head-On 2) N/A

Vehicle #1

Direction: West
 Type: Van
 Movement: Skidding
 Dvr Cond: Apparently normal

Vehicle #2

Direction: East
 Type: Van
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions

Weather: Snow / Sleet Surface: Snow Light: Daylight Traffic Signal: N
 Spd Lmt: Rd Condition: No defects Road Character: Curve and grade

Causes:

- 1) Severe crosswinds
- 2) Severe crosswinds

DATE: 6/4/2005

HOUR 2 AM

REPORT NUMBER: 0509735028

Location

Route: MD 614 Mile: 1.98 County: 15 Municipality:
 Name: GOLDSBORO RD Lane: S1 Intersection-related

Severity

Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
 Single Vehicle 2) Fixed Object

Vehicle #1

Direction: N/A
 Type: Recreational Vehicle
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2

Direction: West
 Type: N/A
 Movement: N/A
 Dvr Cond: N/A

Conditions

Weather: Clear / Cloudy Surface: Wet Light: Dark / LI Traffic Signal: Y
 Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section**AIMS Accident Report Extract****Bradley Blvd and Wilson Lane****Total Accidents: 14****Vehicle Occupants**

Injured: 8	Injured: 1
Killed: 0	Killed: 0

Pedestrians**Harmful Events (Top 2)**

Other Vehicle	12
Fixed Object	1
Pedestrian	1

Accident Severity

Not injured	5
Possible Injury	3
Injured	2
Disabled	2
Fatal	0

Intersection Related

Non-intersection	0
Intersection	11
Intersection-related	2
Driveway-Access	1
Non-intersection	0
Intersection	0
Intersection-related	0
Driveway-Access	0
Other	0
Unknown	0

Contributing Circumstances (Top 2)

Failed to obey traffic signal	3
Failed to give full time/attention	3
Failed to yield right-of-way	3

Time Of Day

6:00 a.m. - 10:00 a.m.: 1	10:00 a.m. - 4:00 p.m.: 6	4:00 p.m. - 8:00 p.m.: 3	8:00 p.m. - 6:00 a.m.: 3
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Weather

N/A	0
Clear / Cloudy	10
Foggy	0
Raining	4
Snow / Sleet	0
Severe winds	0
Other	0
Unknown	0

Road Surface

N/A	0
Wet	5
Dry	9
Snow	0
Ice	0
Mud	0
Other	0
Unknown	0

Illumination

N/A	0
Daylight	9
Dawn / Dusk	1
Dark / Lights on	4
Dark / No Lights	0
Other	0
Unknown	0

Collision Type

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 1 of 5

DATE: 3/7/2003 HOUR 1 PM

REPORT NUMBER: 9731614

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: W1 Intersection

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) Unknown

Vehicle #1

Direction: North
 Type: Automobile
 Movement: Starting from Traffic Lane
 Dvr Cond: Apparently normal

Vehicle #2

Direction: West
 Type: Van
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) Failed to give full time/attention

DATE: 8/27/2003 HOUR 9 PM

REPORT NUMBER: 9731634

Location

Route: MD 191 Mile: 4.72 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection-related

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
 Rear-End 2) Fixed Object

Vehicle #1

Direction: South
 Type: Automobile
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Vehicle #2

Direction: South
 Type: Recreational Vehicle
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Wet Light: Dark / Li Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes

- 1) Following too closely
- 2) What is Code 00?

DATE: 3/24/2004 HOUR 8 AM

REPORT NUMBER: 9241569

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 3 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 3 Harmful Events: 1) Other Vehicle
 Rear-End 2) Other Vehicle

Vehicle #1

Direction: South
 Type: Automobile
 Movement: Starting from Traffic Lane
 Dvr Cond: Apparently normal

Vehicle #2

Direction: South
 Type: Automobile
 Movement: Stopping in Traffic Lane
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to give full time/attention
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 2 of 5

DATE: 10/30/2005

HOUR 10 AM

REPORT NUMBER: 0510540664

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 2 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
 Left Turn Into Opposing Traffic 2) Fixed Object

Vehicle #1

Direction: South
 Type: Recreational Vehicle
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2

Direction: North
 Type: Recreational Vehicle
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to yield right-of-way
- 2) What Is Code 00?

DATE: 11/8/2005

HOUR 8 PM

REPORT NUMBER: 0510543292

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: N1 Intersection

Severity

Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 02 Harmful Events: 1) Other Vehicle
 Left Turn into Opposing Traffic 2) N/A

Vehicle #1

Direction: North
 Type: Station Wagon
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2

Direction: South
 Type: Automobile
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
 Spd Lmt: Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Improper turn
- 2) What is Code 00?

DATE: 1/29/2006

HOUR 2 PM

REPORT NUMBER: 10688001

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: N1 Intersection-related

Severity

Possible Injury Occupants Killed: 0 Pedestrians Killed: 0
 Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 03 Harmful Events: 1) Other Vehicle
 Rear-End 2) N/A

Vehicle #1

Direction: North
 Type: Automobile
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Vehicle #2

Direction: North
 Type: Stopping in Traffic Lane
 Movement: Stopping in Traffic Lane
 Dvr Cond: Apparently normal

Conditions

Weather: Raining Surface: Wet Light: Daylight Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Too fast for conditions
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 3 of 5

DATE: 3/27/2006

HOUR 7 PM

REPORT NUMBER: 10669794

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: N1 Intersection

Severity:

Injured
 Vehicles Involved: 1 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 0 Pedestrians Injured: 1

Events:

Collision Type: 17 Harmful Events: 1) Pedestrian
 Single Vehicle 2) Unknown

Vehicle #1:

Direction: West
 Type: Automobile
 Movement: Slowing / Stopping
 Drvr Cond: Apparently normal

Vehicle #2:

Direction: N/A
 Type: N/A
 Movement: N/A
 Drvr Cond: N/A

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Dark / LI Traffic Signal: N
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) What is Code 00?
- 2) What is Code 00?

DATE: 4/14/2006

HOUR 12 Noon

REPORT NUMBER: 10690369

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity:

Not injured
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 0 Pedestrians Injured: 0

Events:

Collision Type: 02 Harmful Events: 1) Other Vehicle
 Left Turn Into Opposing Traffic 2) N/A

Vehicle #1:

Direction: North
 Type:
 Movement: Making Left Turn
 Drvr Cond: Unknown

Vehicle #2:

Direction: South
 Type: Automobile
 Movement: Moving at Constant Speed
 Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 4/16/2006

HOUR 5 PM

REPORT NUMBER: 10690421

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity:

Not injured
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 0 Pedestrians Injured: 0

Events:

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) N/A

Vehicle #1:

Direction: East
 Type: Automobile
 Movement: Moving at Constant Speed
 Drvr Cond: Apparently normal

Vehicle #2:

Direction: South
 Type: Van
 Movement: Moving at Constant Speed
 Drvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 4 of 5

DATE: 8/30/2006

HOUR 9 PM

REPORT NUMBER: 10694639

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: N1 Intersection

Severity:

Possible Injury
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events:

Collision Type: 03 Harmful Events: 1) Other Vehicle
 Rear-End 2) Unknown

Vehicle #1:

Direction: South
 Type:
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Vehicle #2:

Direction: South
 Type: Automobile
 Movement: Slowing / Stopping
 Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dark / Li Traffic Signal: Y
 Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to give full time/attention
- 2) What is Code 00?

DATE: 11/8/2006

HOUR 6 AM

REPORT NUMBER: 10697067

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: S1 Intersection

Severity:

Injured
 Vehicles Involved: 2 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events:

Collision Type: 02 Harmful Events: 1) Other Vehicle
 Left Turn into Opposing Traffic 2) Unknown

Vehicle #1:

Direction: North
 Type: Automobile
 Movement: Making Left Turn
 Dvr Cond: Apparently normal

Vehicle #2:

Direction: South
 Type: Automobile
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions:

Weather: Raining Surface: Wet Light: Dawn / D Traffic Signal: Y
 Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and grade

Causes:

- 1) Failed to yield right-of-way
- 2) What is Code 00?

DATE: 11/17/2006

HOUR 2 PM

REPORT NUMBER: 10697475

Location:

Route: MD 191 Mile: 4.71 County: 15 Municipality:
 Name: BRADLEY BLVD Lane: W3 Intersection

Severity:

Possible Injury
 Vehicles Involved: 4 Occupants Killed: 0 Pedestrians Killed: 0
 Occupants Injured: 1 Pedestrians Injured: 0

Events:

Collision Type: 11 Harmful Events: 1) Other Vehicle
 Right Angle Collision 2) Fixed Object

Vehicle #1:

Direction: West
 Type: Station Wagon
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Vehicle #2:

Direction: North
 Type: Pickup Truck
 Movement: Moving at Constant Speed
 Dvr Cond: Apparently normal

Conditions:

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
 Spd Lmt: 45 Rd Condition: No defects Road Character: Straight and level

Causes:

- 1) Failed to obey traffic signal
- 2) What is Code 00?

Montgomery County Traffic Engineering and Operations Section

AIMS Accident Report Extract

Page 5 of 5

DATE: 7/23/2007

HOUR 7 PM

REPORT NUMBER: 10708252

Location

Route: MD 191 Mile: 4.7 County: 15 Municipality:
Name: BRADLEY BLVD Lane: NO Driveway-Access

Severity

Not injured Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 1 Occupants Injured: 0 Pedestrians Injured: 0

Events

Collision Type: 17 Harmful Events: 1) Fixed Object
Single Vehicle 2) N/A

Vehicle #1

Direction: North
Type:
Movement: Moving at Constant Speed
Dvr Cond: Had been drinking

Vehicle #2

Direction: N/A
Type: N/A
Movement: N/A
Dvr Cond: N/A

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 30 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Under Influence of alcohol
- 2) What is Code 00?

DATE: 6/13/2007

HOUR 11 AM

REPORT NUMBER: 10707205

Location

Route: MD 191 Mile: 4.71 County: 15 Municipality:
Name: BRADLEY BLVD Lane: S1 Intersection

Severity

Disabled Occupants Killed: 0 Pedestrians Killed: 0
Vehicles Involved: 2 Occupants Injured: 1 Pedestrians Injured: 0

Events

Collision Type: 11 Harmful Events: 1) Other Vehicle
Right Angle Collision 2) N/A

Vehicle #1

Direction: East
Type: Van
Movement: Moving at Constant Speed
Dvr Cond: Apparently normal

Vehicle #2

Direction: South
Type: Automobile
Movement: Accelerating
Dvr Cond: Apparently normal

Conditions

Weather: Clear / Cloudy Surface: Dry Light: Daylight Traffic Signal: Y
Spd Lmt: 35 Rd Condition: No defects Road Character: Straight and level

Causes

- 1) Failed to obey traffic signal
- 2) What is Code 00?

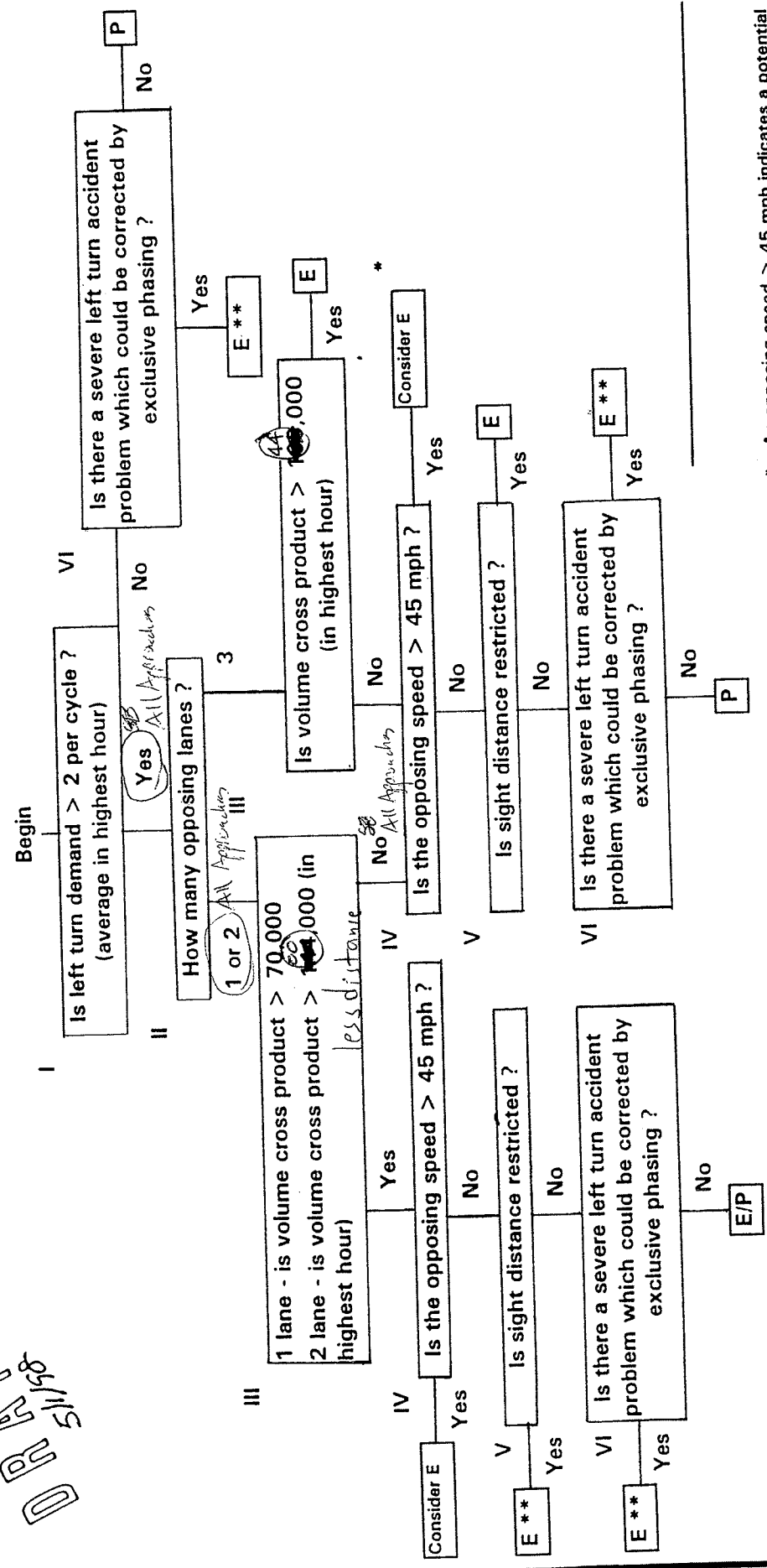
Traffic Study

APPENDIX G

Left-Turn Phasing

DRAFT
5/1/98

Recommended Procedure for determining type of left-turn phasing



* An opposing speed > 45 mph indicates a potential left turn accident problem. Consider exclusive phasing, realizing that non-left turn accidents may increase

** Use exclusive phasing with the understanding that non-left turn accidents may increase.

Restrictive Sight Distance is:

< 250 feet when speeds are 35 mph or less;

< 400 feet when speeds are 40 mph or more

P - Permissive

E/P - Exclusive/Permissive

E - Exclusive

Note: This procedure applies to locations that have a separate left turn lane.

DRAFT

5/1/98

FLOWCHART CALCULATION PROCEDURES

- I. Determine the left-turn volume in the hour of the highest left-turn demand and divide by the number of cycles per hour. Determine whether the result is greater than 2.0.
- II. Determine the number of lanes of traffic opposing the left turn movement. These would all be lanes on the opposite approach with through or right-turning vehicles or both.
- III. Multiply the left-turn hourly volume by the hourly volume of the opposing through traffic. Use the same hour as in Step 1. Compare the answer with either 70,000 for one opposing lane, 100,000 for two opposing lanes or 144,000 for three opposing lanes.
- IV. Determine whether the speed on the opposing approach is greater than 45 mph.
- V. Determine whether the sight distance is restricted. Restricted sight distance is < 250 ft. when speeds are 35 mph or less and < 400 ft. when speeds are 40 mph or more.
- VI. Determine whether there is a severe left-turn accident problem that could be corrected by exclusive phasing. The Engineer should thoroughly review accident data and visit the site in question to insure all other countermeasures have been exhausted.

POLICY #
TS-11

MEMORANDUM


October 5, 1982

TO: Mr. Ronald C. ~~Wetzel~~, Chief, Division of Traffic Engineering
VIA: W. Scott Wainwright, Assistant Chief, Div. of Traffic Engineering
VIA: John W. Thompson, Chief, Traffic Operations Section
FROM: John C. Rice, Engineer III, Traffic Operations Section
SUBJECT: Traffic Signals General --
Guidelines for Selection of Left Turn Phase Type

Following a considerable period of development and review, we have completed a guideline for the selection of various turning movement traffic flow patterns. The proper usage of traffic control for turning movements will help produce safe and efficient intersections. Discussed are the use of exclusive, permissive, leading, and lagging left turn systems.

Please consider the approval of these proposed guidelines.

JCR:slf
1349A

Approved

10/12/82

GUIDELINES FOR SELECTION OF LEFT TURN PHASE TYPE

October 5, 1982

I. INTRODUCTION

The following are guidelines for determining the applicability of various different types of left turn phasing treatments. The guidelines are for use in designing left turn phases after it has been determined that the phase is justified by warrants such as volumes, accidents, delay, etc.. The guidelines do not cover the warrants for left turn phasing.

II. DEFINITIONS

A. Exclusive left turn phase -- Left turns are allowed only during the protected phase, during the green arrow portion of the cycle.

B. Permissive left turn phase -- Left turns occur during the protected phase (left turn green arrow) AND left turns are permitted during the associated through traffic phase (circular green), if gaps in opposing traffic occur. The turning traffic must yield to opposing traffic. (MSHA refers to this phasing as "Exclusive/Permissive" (E/P)).

1. Leading-to-Permissive -- the protected left turn phase preceeds the opposing through phase.
2. Permissive-to-Lagging -- the protected left turn phase follows the opposing through phase.

C. Lead-Lag -- An exclusive left turn phasing combination, where one direction features a leading left turn, and the opposing direction features a lagging left turn.

D. Left Turn "Trap" -- A phenomenon that occurs at intersections where only one direction has a permissive-lagging left turn phase. Left turns in the direction opposing the lagging left signal see a display of yellow change interval and may mistakenly assume that oncoming traffic also has a yellow interval at the same time. Actually the opposite direction has circular green indications -- thus the "trap" and safety hazard. This is obsolete practice.

III. LEADING vs LAGGING PHASES

This part will consider the use of leading (in contrast to lagging), left turn phases.

A. T-Type (3-leg) Intersection

1. Isolated traffic signals -- lagging phase operation is usually more efficient.

2. Coordinated signal systems -- the use of leading or lagging phases should be determined by the through-band efficiency using the time/space diagram.

3. If lagging phase is selected, note that the "trap" may occur affecting left turns into driveway opposite T, or U-turns. Consider prohibiting opposing left and U-turns, or consider using a leading left turn.

B. Four-way (or more) intersections having only one direction of left turn phase.

1. Leading left turn phase should be used.

2. A lagging left turn phase will create the "trap", and should be used only if opposing "uncontrolled" left and U-turn have been prohibited.

C. Four-way (or more) intersection, having two opposing left turn phases.

1. Isolated traffic signals -- both left turn phases should be leading, for optimum efficiency with actuated controllers.

2. Coordinated signals systems -- the use of leading or lagging left turn phases should be determined by the through-band efficiency using the time/space diagram.

a. Both leading left turn phases.

b. One leading, one lagging (lead-lag phasing) -- If lead-lag is chosen, exclusive phasing must be used (See Part IV).

IV. EXCLUSIVE vs PERMISSIVE PHASING

This part will consider the use of exclusive (in contrast to permissive), left turn phasing.

A. Permissive -- All new or modified left turn phases, should be permissive unless otherwise indicated by factors listed in B below.

1. Existing exclusive left turn phases should be reviewed with intent to convert them to permissive type if feasible.

2. Existing permissive type left turn phases should be reviewed occasionally to determine if a significant accident problem exists that would indicate a need for exclusive left turn phasing.

B. Exclusive -- The factors listed below may indicate a need for exclusive left turn phasing.

1. Sight distance insufficient for left turning vehicles.

2. Unusual geometry (curves, skewed approaches) making it difficult for left turning vehicles to judge opposing speeds and adequate "gaps" in traffic.

3. Double left turning lanes must be of the exclusive type. (At some locations double left turns can be accommodated without special phasing if the opposing traffic is negligible).

4. The use of "lead-lag" phasing at a four-way intersection requires that the leading phase be made exclusive, to avoid the "trap" situation.
5. Very wide medians that may affect sight distance or that cannot be safely crossed may require exclusive left turn phasing.
6. Very high approach speeds of opposing traffic (85th percentile 45 MPH or higher) may require exclusive left turn phasing, particularly in conjunction with 5 above.
7. High volumes of truck traffic may create sight distance problems.
8. A pattern of left turning accidents may indicate a need for exclusive phasing.
9. Lack of sufficient opposing gaps, accompanied by left turning traffic trying to force their way into the stream and being left in the intersection after the yellow and/or all-red clearance intervals.
10. Combinations of the above.

V. SPLIT-PHASING

A. This special case of left turn phasing provides separate signal phases for the movement of opposing traffic. It is a means of increasing intersection capacity, since it permits the use of double left turning lanes.

1. Volumes -- The need for split phasing should be determined by critical lane analysis. Very heavy left turn volumes are required.
2. Accidents -- Split phasing may occasionally be used to resolve an accident problem at locations where high left turning volumes occur and where no off-set left turn bays exist. Split phasing can make up for the lack of sufficient sight distance and storage. This use will increase delays at the intersection, however.

B. Pedestrians

The use of split phasing requires special consideration of pedestrian crossing routes and phases.

JCR/slf

0725A

Traffic Study

APPENDIX H

Turn Bay Storage Computations

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Goldsboro Road

MOVEMENT: Westbound Bradley Boulevard Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

195 feet

LONGEST OBSERVED QUEUE

18 vehicles

	AM	Midday	PM	
CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)	341	0	688	vehicles per hour
CYCLE LENGTH (sec)	100	100	100	seconds
AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$	9.5	0.0	19.1	vehicles/second
MAXIMUM NO. OF VEHICLES PER CYCLE:	15	0	27	vehicles
QUEUE LENGTH (25' per Vehicle)	375	0	675	feet
QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)				feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Goldsboro Road

MOVEMENT: Northbound Goldsboro Road Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

101 feet

LONGEST OBSERVED QUEUE

N/A vehicles

CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)

AM **Midday** **PM** **vehicles per hour**

CYCLE LENGTH (sec)

72 **0** **133** **seconds**

AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$

100 **100** **100** **vehicles/second**

MAXIMUM NO. OF VEHICLES PER CYCLE:

2.0 **0.0** **3.7** **vehicles**

QUEUE LENGTH (25' per Vehicle)

5 **0** **7** **feet**

QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)

125 **0** **175** **feet (with E/P)**

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Wilson Lane

MOVEMENT: Eastbound Bradley Boulevard Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

0 feet

LONGEST OBSERVED QUEUE

N/A vehicles

	AM	Midday	PM	
CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)	36	0	46	vehicles per hour
CYCLE LENGTH (sec)	120	120	120	seconds
AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$	1.2	0.0	1.5	vehicles/second
MAXIMUM NO. OF VEHICLES PER CYCLE:	3	0	4	vehicles
QUEUE LENGTH (25' per Vehicle)	75	0	100	feet
QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)				feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Wilson Lane

MOVEMENT: Westbound Bradley Boulevard Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

0 feet

LONGEST OBSERVED QUEUE

N/A vehicles

CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)

113

0

60

vehicles per hour

CYCLE LENGTH (sec)

120

120

120

seconds

AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$

3.8

0.0

2.0

vehicles/second

MAXIMUM NO. OF VEHICLES PER CYCLE:

7

0

5

vehicles

QUEUE LENGTH (25' per Vehicle)

175

0

125

feet

QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)

feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Wilson Lane

MOVEMENT: Northbound Wilson Lane Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

0 feet

LONGEST OBSERVED QUEUE

N/A vehicles

CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)

16

0

24

vehicles per hour

CYCLE LENGTH (sec)

120

120

120

seconds

AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$

0.5

0.0

0.8

vehicles/second

MAXIMUM NO. OF VEHICLES PER CYCLE:

2

0

2

vehicles

QUEUE LENGTH (25' per Vehicle)

50

0

50

feet

QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)

feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :

Turn Bay Storage Computation Sheet

LOCATION: Bradley Boulevard at Wilson Lane

MOVEMENT: Southbound Wilson Lane Lefts

Date: 8-May-09

ANALYSIS YEAR: Existing (2009)

By: EFH

W.O. # 31681-002

EXISTING STORAGE AVAILABLE

0 feet

LONGEST OBSERVED QUEUE

N/A vehicles

CRITICAL TURNING MOVEMENT VOLUME (vehicles per hour)

39

0

25

vehicles per hour

CYCLE LENGTH (sec)

120

120

120

seconds

AVERAGE NO. OF VEHICLES/CYCLE = $\frac{\text{Critical Volume} \times \text{Cycle Length}}{3600 \text{ sec/hour}}$

1.3

0.0

0.8

vehicles/second

MAXIMUM NO. OF VEHICLES PER CYCLE:

3

0

2

vehicles

QUEUE LENGTH (25' per Vehicle)

75

0

50

feet

QUEUE LENGTH - Based on Observed Queue (25' per Vehicle)

feet (with E/P)

Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle		Average No. of Vehicles per Cycle	Maximum No. of Vehicles per Cycle
0.1 - 0.3	1		9.3 - 10.0	15
0.4 - 0.8	2		10.1 - 10.8	16
0.9 - 1.3	3		10.9 - 11.6	17
1.4 - 1.9	4		11.7 - 12.4	18
2.0 - 2.6	5		12.5 - 13.2	19
2.7 - 3.2	6		13.3 - 14.0	20
3.3 - 3.9	7		14.1 - 14.9	21
4.0 - 4.7	8		15.0 - 15.7	22
4.8 - 5.4	9		15.8 - 16.5	23
5.5 - 6.1	10		16.6 - 17.3	24
6.2 - 6.9	11		17.4 - 18.2	25
7.0 - 7.7	12		18.3 - 19.0	26
7.8 - 8.4	13		19.1 - 19.8	27
8.5 - 9.2	14		19.9 - 20.0	28
			>20.0	-----*1.4

COMMENTS / OBSERVATIONS :



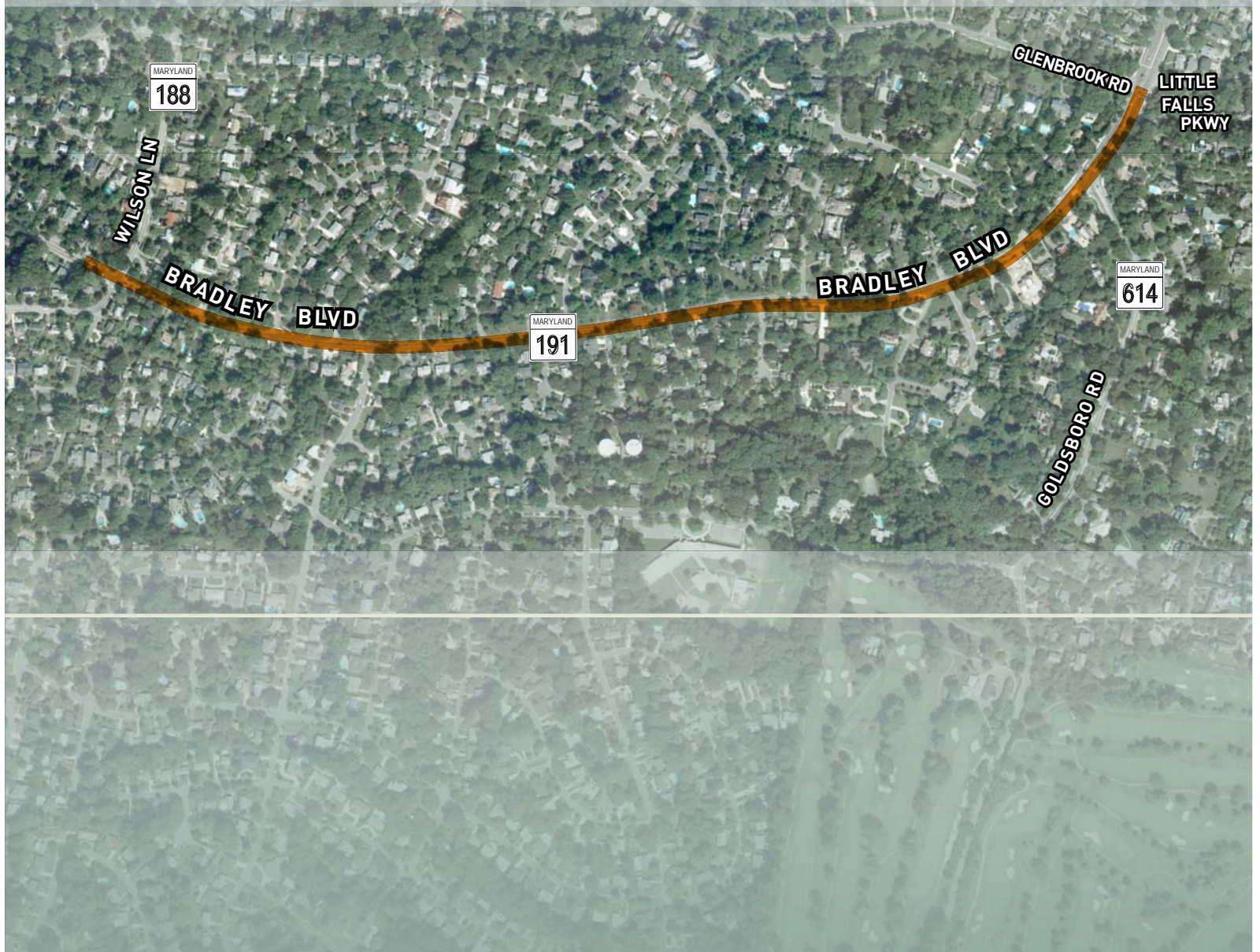
Planning

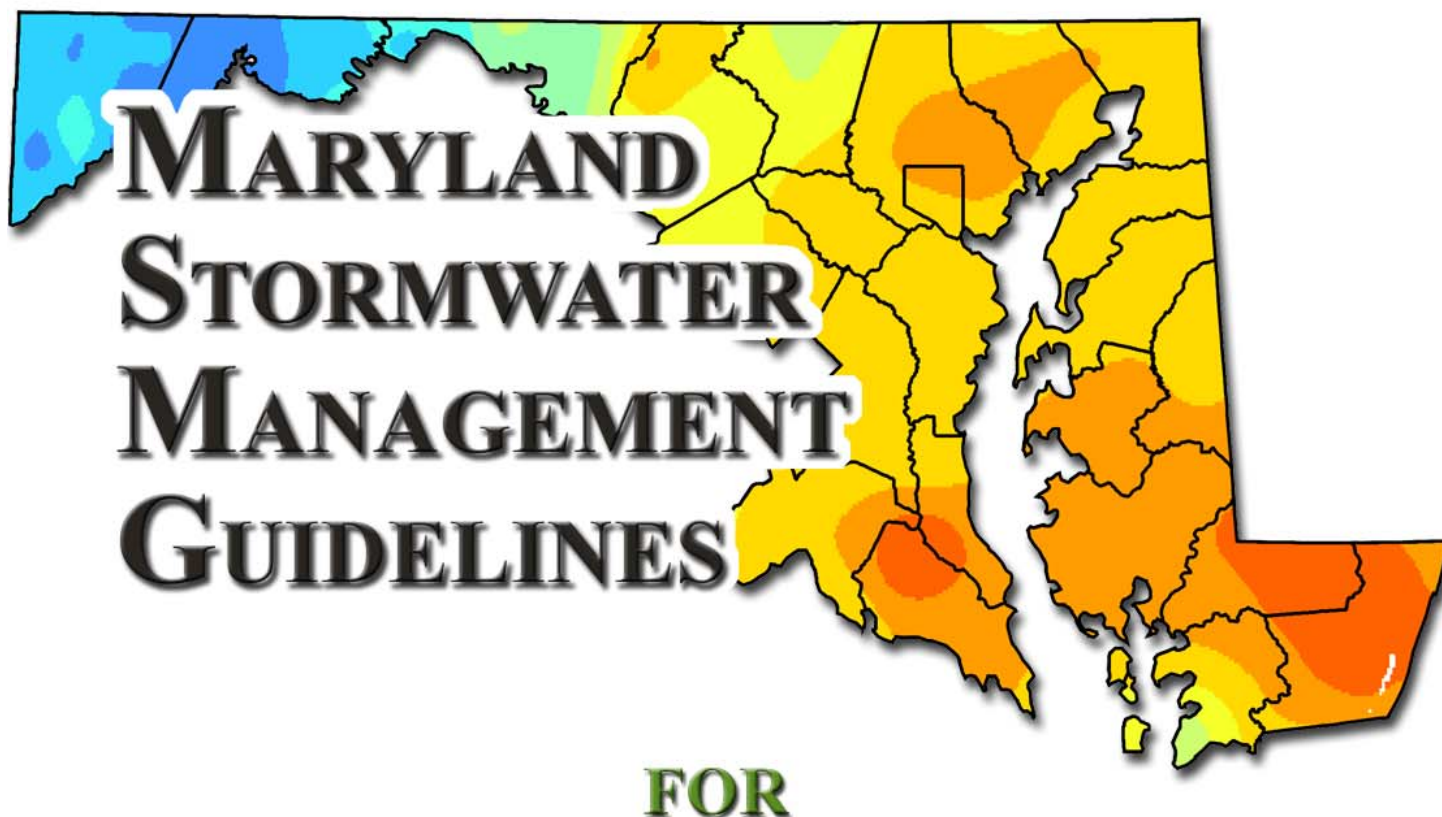
Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

APPENDIX G

Stormwater Management Guidelines Excerpts





STATE & FEDERAL PROJECTS

APRIL 15, 2010



1800 Washington Boulevard | Baltimore, MD 21230-1718 | www.mde.state.md.us
410-537-3000 | 800-633-6101 | TTY Users: 800-735-2258
Martin O'Malley, *Governor* | Anthony G. Brown, *Lt. Governor* | Shari T. Wilson, *Secretary*



INTRODUCTION

The Environment Article, Title 4, Subtitle 2 requires the Maryland Department of the Environment (MDE) to implement a statewide stormwater management program to control runoff from development. To meet this mandate, MDE has adopted regulations that establish criteria and procedures for managing stormwater throughout Maryland.

The Stormwater Management Act of 2007 (Act) further requires that the Code of Maryland Regulations (COMAR) be modified and guidance and ordinances be developed for the purpose of implementing environmental site design (ESD) to the maximum extent practicable (MEP). The Act defines ESD as "...using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources." ESD also promotes conserving natural features, drainage patterns, and vegetation; minimizing impervious surfaces; slowing down runoff; and increasing infiltration. Significant changes to COMAR and the 2000 Maryland Stormwater Design Manual, Volumes I & II (Design Manual) were adopted in May 2009. These changes specify how ESD is to be implemented, how the MEP standard is to be met, and how the review of erosion and sediment control and stormwater management plans is to be integrated. The Maryland Stormwater Management Guidelines for State and Federal Projects represent the next step toward meeting MDE's obligations under current law and serves as guidance for developing, reviewing, and approving stormwater management plans for State and federal projects.

The changes required to implement the Act are significant and will force developers and designers to consider runoff control from the start of the land development process. The definition of ESD, the modifications to COMAR, and the procedures and minimum plan contents specified herein will guide all State and federal agencies submitting stormwater management plans to MDE. Because stormwater management for new development and redevelopment will be conceived, designed, reviewed, and built differently from procedures used prior to passage of the Act, transitioning to the new methods will take some time, and obstacles may be encountered. However, implementing ESD to the MEP must be the overriding goal that pervades each step.

Guidance for preparing an erosion and sediment control plan is provided separately in the Maryland Erosion and Sediment Control Guidelines for State and Federal Projects. If there are any questions or comments regarding these guidelines, please contact the Sediment & Stormwater Plan Review Division in the Water Management Administration of MDE at 410-537-3563.

4.0 STORMWATER MANAGEMENT CRITERIA

4.1 Minimum Control Requirements

The primary standard of ESD is to reduce post development runoff to levels found in natural, forested conditions. This requires capturing and treating from 1 inch to 2.6 inches of rainfall depending on the design and site conditions (e.g., proposed imperviousness, soils). ESD must be used to treat runoff from 1 inch of rainfall (WQ_v , and Rev). This is a minimum level of compliance. When the entire target rainfall is treated using ESD, the Cp_v requirements, in addition to WQ_v , and Rev , are satisfied. Designers are responsible for determining specific rainfall targets using the methods outlined in Section 5.2 of the Design Manual.

The Administration will enforce the MEP standard for State and federal projects. Professional judgment will be needed to determine whether site constraints prevent the reasonable implementation of ESD.

A. The minimum control requirements are as follows:

1. The Administration must require that the planning techniques, nonstructural practices, and design methods specified in Chapter 5 of the Design Manual be used to implement ESD to the MEP. The use of ESD planning techniques and treatment practices must be exhausted before any structural BMP from Chapter 3 of the Design Manual is implemented. Stormwater management plans must be designed using ESD sizing criteria for Re_v , WQ_v , Cp_v , according to the Design Manual. The ESD standard is met when post-development hydrology is restored to woods in good condition assuring that channel stability is maintained, that predevelopment groundwater recharge is replicated, nonpoint source pollution is minimized, and that structural stormwater management practices are used only when determined to be absolutely necessary.
2. Refer to Table 1 of these guidelines to determine whether control of the 2-year and 10-year 24-hour frequency storm events is required. When management is required, the design must be in accordance with the Design Manual and all subsequent revisions.
3. Projects located in designated Inter-jurisdictional Flood Hazard Watersheds (Jones Falls, Gwynns Falls, and Herring Run in Baltimore City/County and Carroll Creek in Frederick City/County) will be required to provide management measures necessary to maintain the post-development peak discharges for the 100-year 24-hour frequency storm event at a level that is equal to, or less than, the 100-year 24-hour pre-development peak discharge rates. The stormwater management practices must control the volume, timing, and rate of flow necessary to maintain "no increase" in the downstream peak discharge for the 100-year 24-hour frequency storm event.
4. Stable and safe conveyance of the 10-year 24-hour frequency storm must be provided for all points of discharge from the project. Discharge velocities for the 10-year storms must be non-erosive. The downstream impact analysis must extend to the first downstream tributary whose drainage area equals or exceeds

the contributory drainage area to the POI; or to the downstream point where the flow rate is a minimum of twice the discharge rate from the POI;

5. The Administration may require more than the minimum control requirements specified in these Guidelines if hydrologic or topographic conditions warrant or if historical downstream flooding or receiving channel degradation exists or has the potential to occur as a result of the project.
- B. Alternate minimum control requirements may be adopted subject to Administration approval. The Administration shall require that alternative requirements include ESD to the MEP and control flood damages, accelerated stream erosion, water quality, and sedimentation. Comprehensive watershed studies may also be required.
 - C. Where applicable, stormwater management plans must be consistent with adopted and approved institutional management plans, watershed management plans, or flood management plans as approved by MDE in accordance with the Flood Hazard Management Act of 1976.
 - D. Identify and provide any additional protection measures for Tier II streams, Critical Areas, and impaired waters or waters with an established Total Maximum Daily Load (TMDL) above the required ESD to the MEP.

4.2 Stormwater Management Measures

The ESD planning techniques and practices and structural stormwater management measures established in the Design Manual must be used either alone or in combination. An applicant must demonstrate that ESD has been implemented to the MEP before using any structural BMP.

- A. ESD Planning Techniques.
 1. The following planning fundamentals must be applied according to the Design Manual to satisfy the applicable minimum control requirements established in Section 4.1 of these Guidelines:
 - a. Preserving and protecting natural resources;
 - b. Conserving natural drainage patterns;
 - c. Minimizing impervious area;
 - d. Using green roofs, permeable pavement, reinforced turf, and other alternative surfaces;
 - e. Reducing runoff volume;
 - f. Maintaining 100 percent of the annual predevelopment groundwater recharge volume;
 - g. Clustering development;

- h. Limiting soil disturbance, mass grading, and compaction; and
 - i. Other techniques approved by the Administration.
 - 2. The following ESD treatment practices must be designed in accordance with the Design Manual to satisfy the applicable minimum control requirements established in Section 4.1 of these Guidelines:
 - a. Disconnection of rooftop runoff;
 - b. Disconnection of non-rooftop runoff;
 - c. Sheetflow to conservation areas;
 - d. Rainwater harvesting;
 - e. Submerged gravel wetlands;
 - f. Landscape infiltration;
 - g. Infiltration/filtration berms;
 - h. Dry wells;
 - i. Micro-bioretenion;
 - j. Rain gardens;
 - k. Vegetated swales;
 - l. Enhanced filters; and
 - m. Other practices approved by the Administration.
 - 3. The use of ESD planning techniques and treatment practices specified in this Section must not conflict with existing State law or local ordinances, regulations, or policies.

B. Structural Stormwater Management Measures.

- 1. If Cpv has not been fully provided after implementing ESD to the MEP, the following structural stormwater management practices must be designed in accordance with the Design Manual to satisfy the applicable minimum control requirements established in Section 4.1 of these Guidelines:
 - a. Stormwater management ponds;
 - b. Stormwater management wetlands;

- c. Stormwater management infiltration;
 - d. Stormwater management filtering systems; and
 - e. Stormwater management open channel systems.
- 2. The performance criteria specified in the Design Manual with regard to general feasibility, conveyance, pretreatment, treatment and geometry, environment and landscaping, and maintenance must be considered when selecting structural stormwater management practices.
- 3. Structural stormwater management practices must be selected to accommodate unique hydrologic or geologic conditions, such as Karst topography and high groundwater, encountered within certain regions of the State.
- C. Alternative ESD planning techniques, ESD treatment practices, and structural stormwater measures may be used for managing stormwater if they meet the performance criteria established in the Design Manual, and all subsequent revisions, and are approved by the Administration.
- D. In situations where the minimum control requirements or design criteria may adversely impact the hydrology or hydraulics downstream of the project, the owner/developer must submit to the Administration an analysis of the impacts of stormwater flows downstream in the watershed. The analysis must include hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing due to the proposed development upon a dam, highway, structure, or natural point of restricted streamflow. The point of analysis is to be established with the concurrence of the Administration and should be located at the point downstream of the first downstream tributary whose drainage area equals or exceeds the contributing area to the project or stormwater management facility.
- E. ESD planning techniques, treatment measures, and structural stormwater management practices, constructed in accordance with an approved plan, must not be altered after construction without approval from the Administration. Prior to considering changes to any stormwater management practice, a conservation area, or an area used as a disconnection, approval must be obtained from the Administration.
- F. Compensatory Stormwater Management (Section 3.5).

4.3 Specific Design Criteria

The design criteria, methodologies, and construction specifications, subject to the approval of the Administration, are those of the Design Manual.

- A. Infiltration systems must be designed in accordance with the Design Manual and must also meet the following requirements:
 - 1. The facility design must include an overflow system with measures to provide a non-erosive discharge velocity.
 - 2. A least one observation well must be provided for an infiltration trench. The depth to the constructed facility bottom must be marked with permanent marker on the inside of the cap.
- B. Ponds, wetlands, filtering systems, and open channel systems must be designed and constructed in accordance with the Design Manual and must also include the following items:
 - 1. Velocity dissipation devices should be placed at the outfall of all detention or retention structures and along the length of any outfall channel as necessary to provide non-erosive velocities at the point of discharge. Flow spreaders may be used to promote sheet flow.
 - 2. If an increase in flooding or stream channel erosion could result at a downstream dam, highway, structure, or natural point of restricted stream flow, the designed release rate of the facility must be reduced.
 - 3. Where the selected BMP is a small pond as defined in Natural Resource Conservation Service (NRCS) Code 378, an NRCS Pond Summary Sheet (see Appendix) must be submitted to and approval obtained from the Administration pursuant to the Environmental Article, Annotated Code of Maryland, Title 5, Subtitle 5.
 - 4. Acceptable methods of modeling the stormwater discharge from a site are TR-55, TR-20 or other methods approved by the Administration.



Planning

Montgomery County Department of Transportation

BRADLEY BOULEVARD (MD 191) IMPROVEMENTS PROJECT

APPENDIX H

Typical Sections

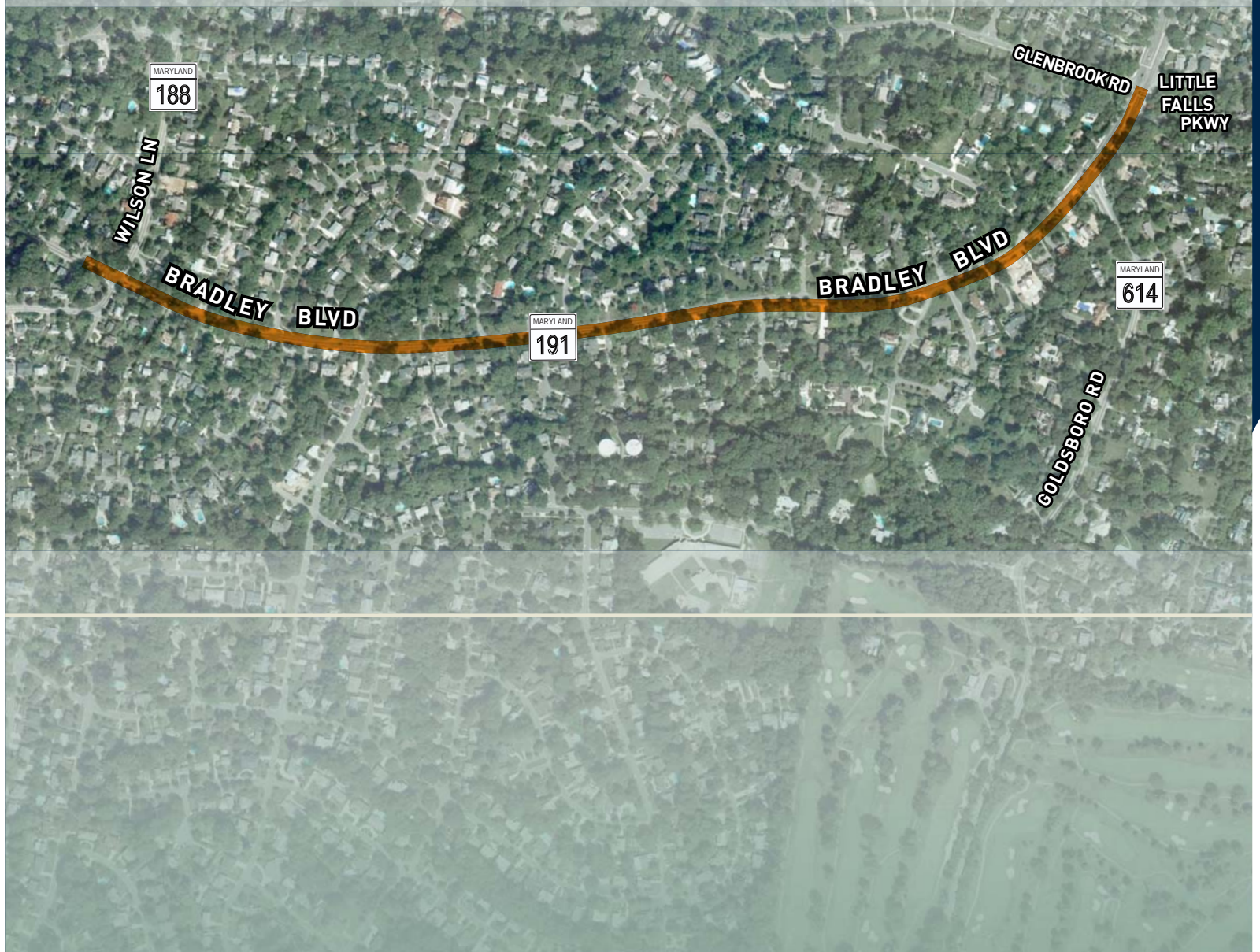


Figure II-2. Alternate 1 – No-Build Typical Section Looking East

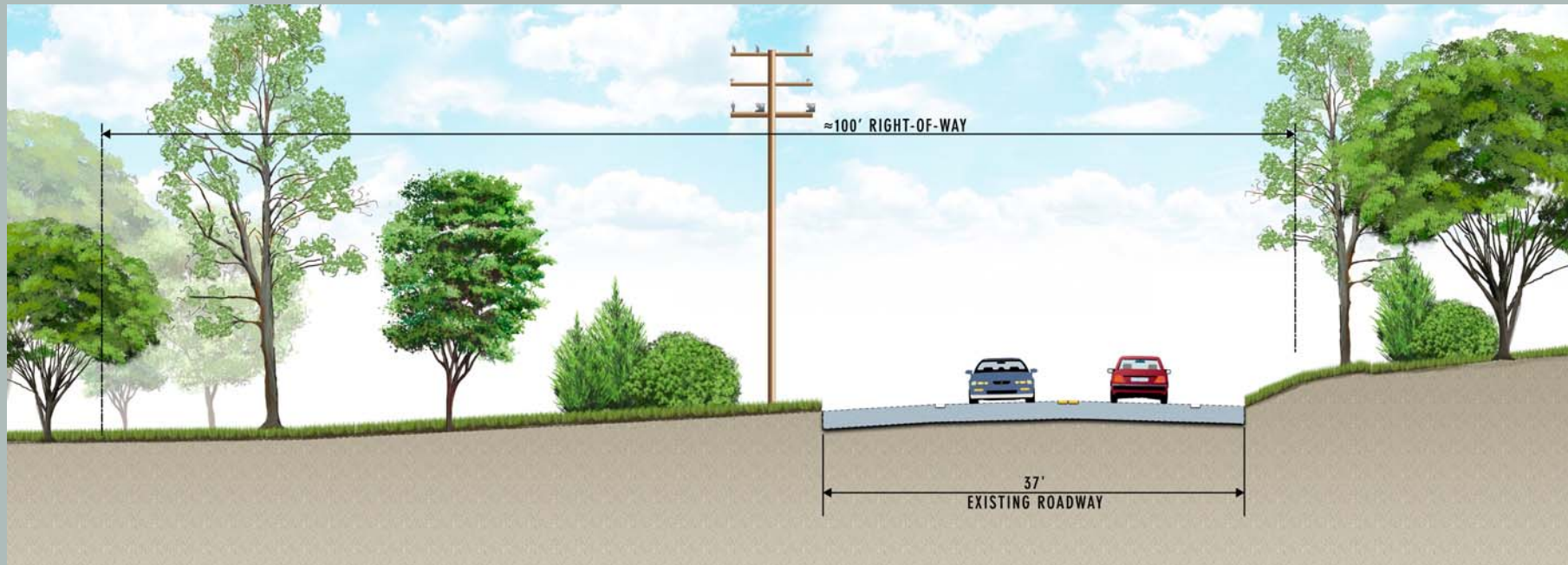
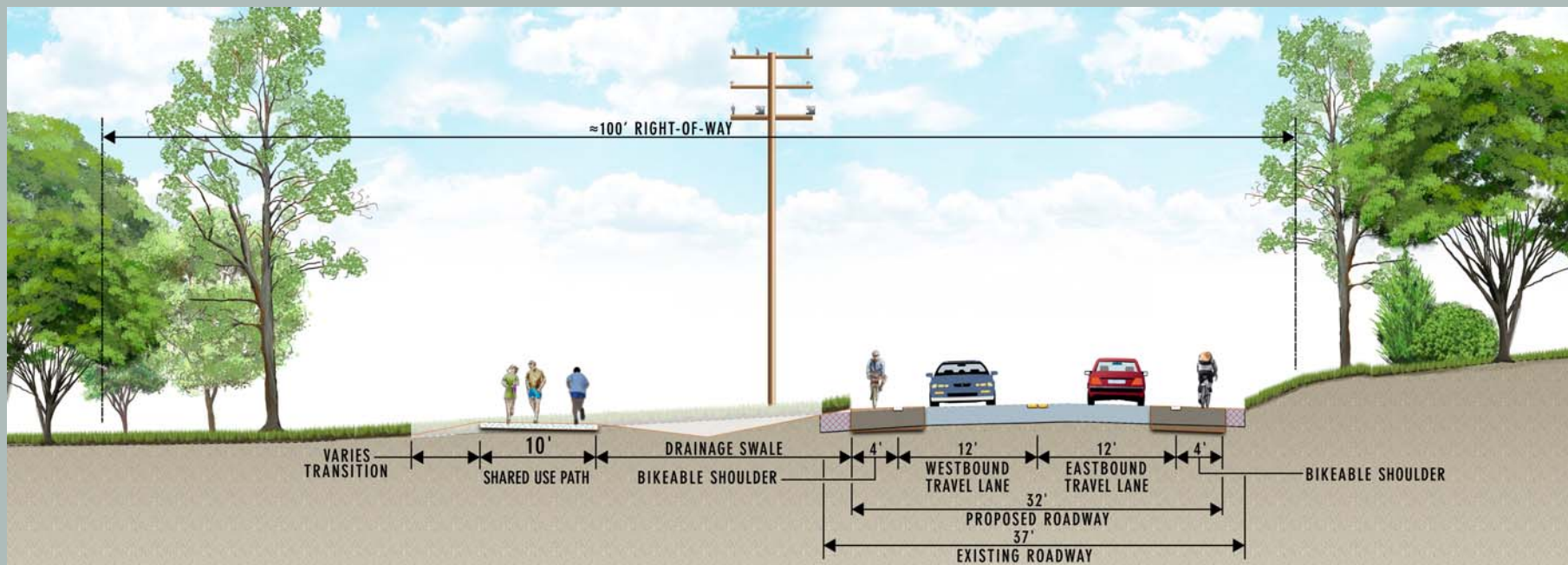


Figure II-3. Alternate 2 – Master Plan Typical Section Looking East



BRADLEY BOULEVARD TYPICAL SECTIONS

Figure II-4. Alternate 3 -Enhanced Master Plan Typical Section Looking East

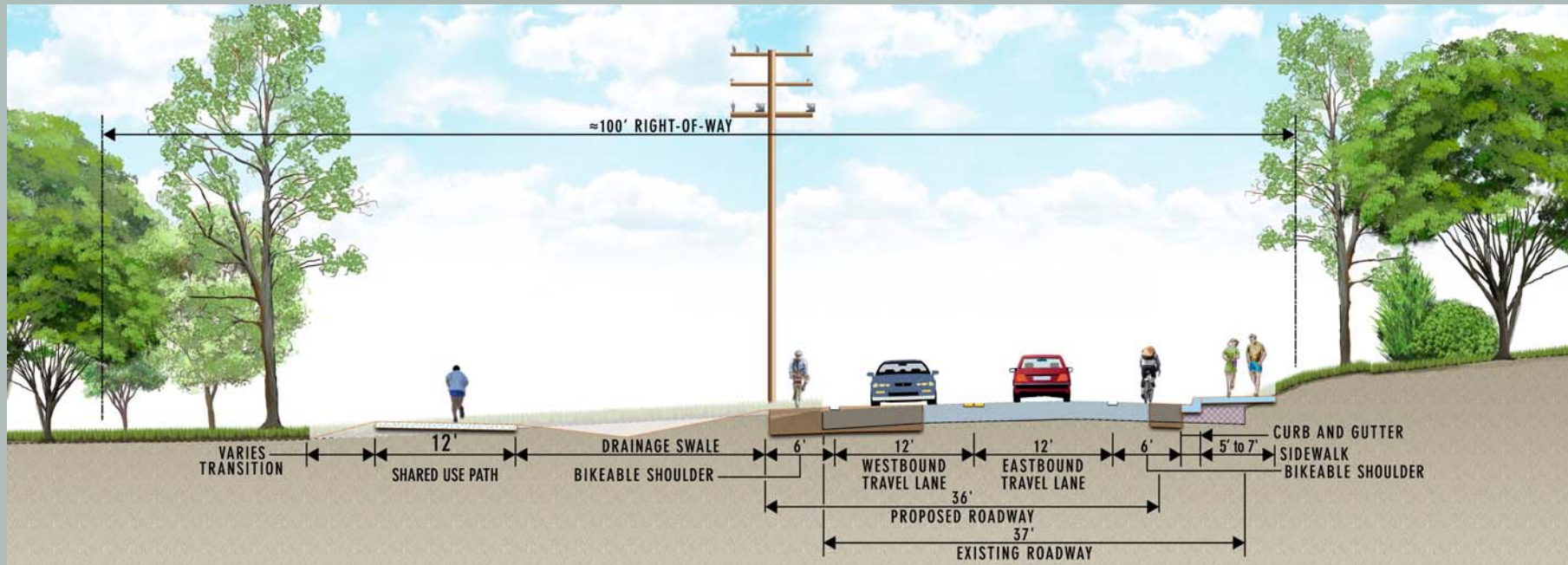
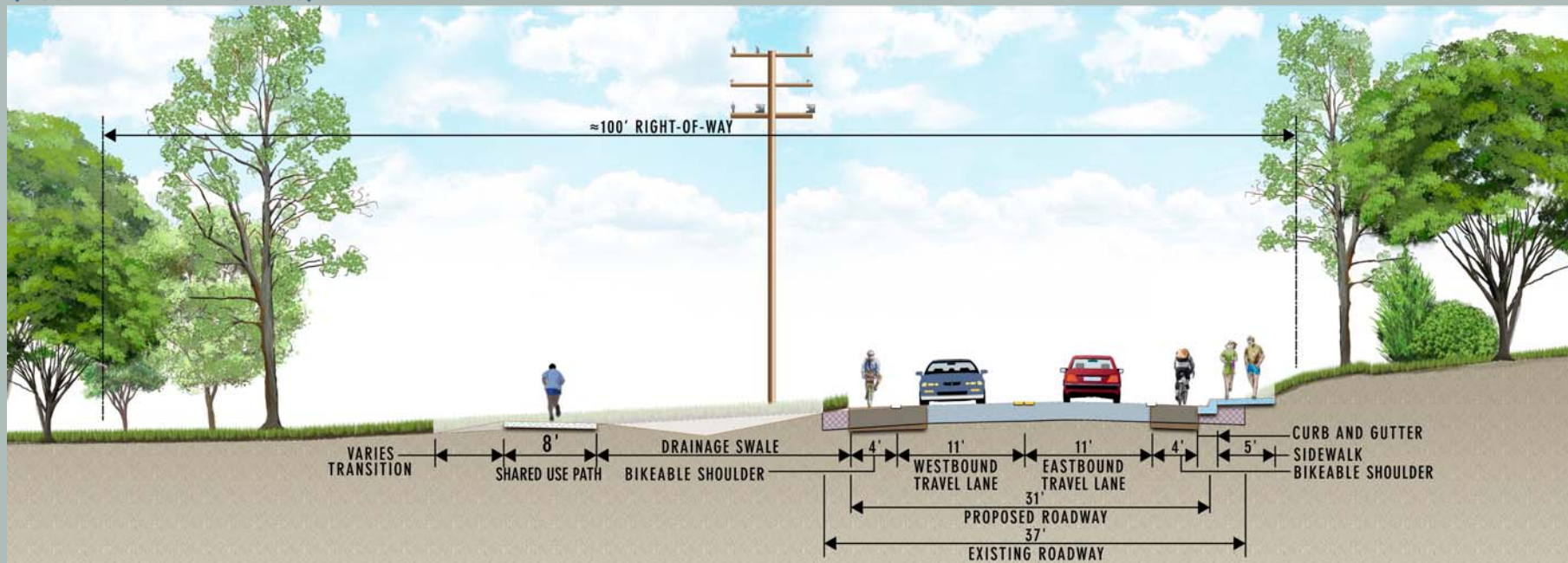


Figure II-5. Alternate 4A - 8' Shared Use Path North Side and Sidewalk South Side with Bikeable Shoulders Typical Section Looking East (Recommended Alternate)



BRADLEY BOULEVARD TYPICAL SECTIONS

Figure II-6. Alternate 4B – Sidewalk North and South Sides with Bikeable Shoulders Typical Section Looking East

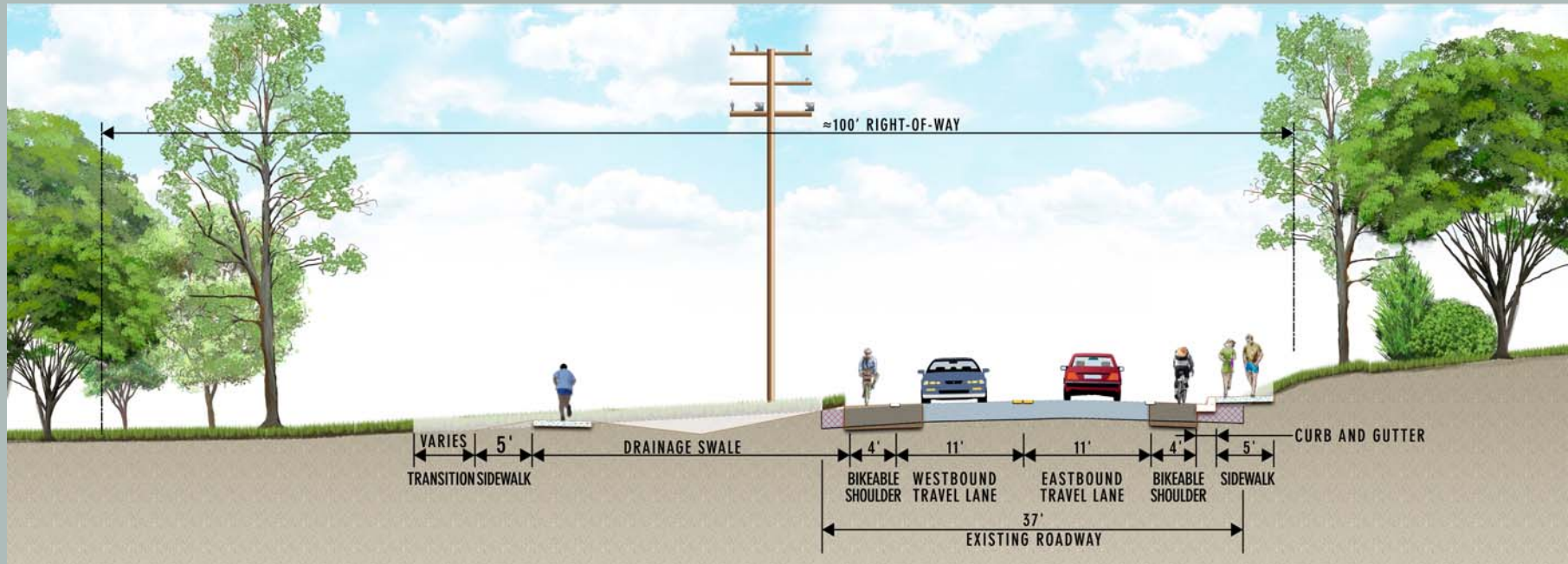


Figure II-7. Alternate 4C – Sidewalk North Side Only with Bikeable Shoulders Typical Section Looking East

