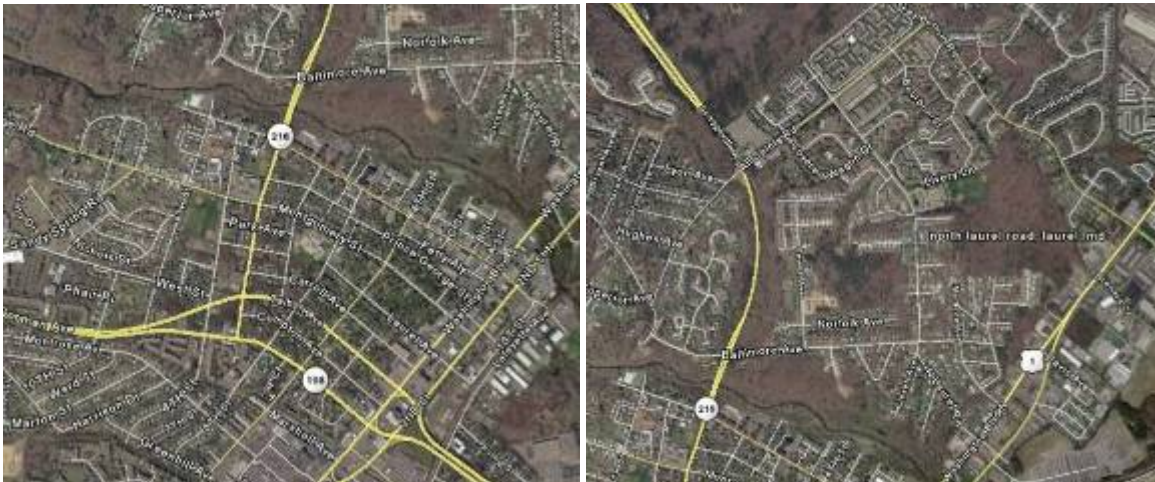


Section J
Network Connections

J. Network Connections

PURPOSE

Building a network of connections beyond US 1 is essential to the goals and vision for the corridor. Using Howard County's regulatory authority to require roadway and/or pathway connections for development will be most effective with a plan in place that identifies feasible connections from engineering, political, and systems perspectives.



This aerial photograph of the City of Laurel (left) shows a well-connected system of streets organized with clear road hierarchy. The aerial of North Laurel (right), by contrast, suggests the challenges to getting from place to place,, particularly for pedestrians and bicyclists.

The goal of the Network Connections analysis is to develop such a plan with future street and path connections. Potential links have had public review and input, a safety and capacity analysis, a review of existing and projected land use activity, and a series of field reviews. While all details cannot be resolved at this broad planning study level, the involvement of many stakeholders and the predictability of an adopted plan have been able to yield progress toward a more complete network.

The identified connections do not describe specific roadway alignments or designs, but rather key points that should be connected as opportunities arise. In sum, these connections represent a transportation system that will function for all roadway users, providing more direct connections for pedestrians and bicyclists, enabling a more efficient system for local automobile trips, and improving the function and aesthetics of US 1 for regionally oriented travel.

KEY FINDINGS

Howard County should adopt a plan of proposed connections using the accompanying information about the goals and anticipated phasing.

Howard County and/or SHA should consider adopting language to assist the development of a system of streets to support the US 1 revitalization vision, similar to the following:

- Pedestrian ways shall be provided between parking areas and from building entrances to surrounding streets, external sidewalks, and outparcels.
- A 10-foot-wide multiuse path easement shall be provided to connect culs-de-sac or to pass through blocks in excess of 500 feet.

Developments must include street connections in direction of all existing or planned streets within a quarter-mile radius, and continue any street that abuts, is adjacent to, or terminates at the site.

METHODOLOGY

The development of the proposed Network Connections is based on:

- A summary of existing authority and guidance,
- Goals, objectives, and issues related to the desired transportation network,
- An iterative process of identifying and revising potential roadway and path connections.

ANALYSIS

Transportation Network Regulations and Authority

The Howard County General Plan identifies major roadway improvement projects that must be accommodated by proposed development. Minor roadways are not identified on the General Plan and little guidance is given for planning these roadways. County reviewers indicated that they are able to recommend connections to abutting roadways during the site plan review, but requiring the connections is often difficult. Section 16.119(b)(2) of the Howard County Subdivision and Land Development Regulations states that, “streets carrying commercial and industrial traffic, especially truck traffic, shall not normally be extended to the boundaries of adjacent residential areas.”

No specific statement addresses connections between complementary land uses or provides for the creation of connections from new residential areas through industrial zones. As the US 1 corridor changes and attracts residential and mixed-use development, and some industrial areas shift to commercial development more compatible with residential life, connections such as these will be needed to ensure the creation of a complete network.

Based on the SHA access manual, the minimum distance between centerlines for streets intersecting US 1 is 750 feet. Additionally, the minimum median crossover spacing is 750 feet. This minimum spacing is recommended only where speeds are no greater than 40 mph. The Howard County Design Manual includes minimum spacing for driveways on County roads.

Target Signal Spacing and Block Size

As discussed previously, signal spacing along US 1 offers the opportunity to manage traffic speed through signal progression, improve property access, and enhance elements of pedestrian safety. The “Access Management Manual” recommends one-half-mile signal spacing and many local and state guidelines recommend minimum arterial signal spacing ranging from 1000 feet to one-half mile. Minimum spacing is desired to improve accessibility and reduce speed of through traffic on US 1.

While the priority for many arterial signal systems is to move traffic through the system, US 1 serves a high proportion of local trips and must also accommodate pedestrian demand and urban land uses. Closely spaced signals provide benefits by providing more controlled crossing locations for pedestrians and less concentrated left-turn and minor street volumes.

Appropriate signal spacing on US 1 should:

- Provide crossing opportunities for pedestrians;
- Enhance connections to US 1 and the local street system;
- Manage speeds; and
- Provide viable access to properties on and near US 1.

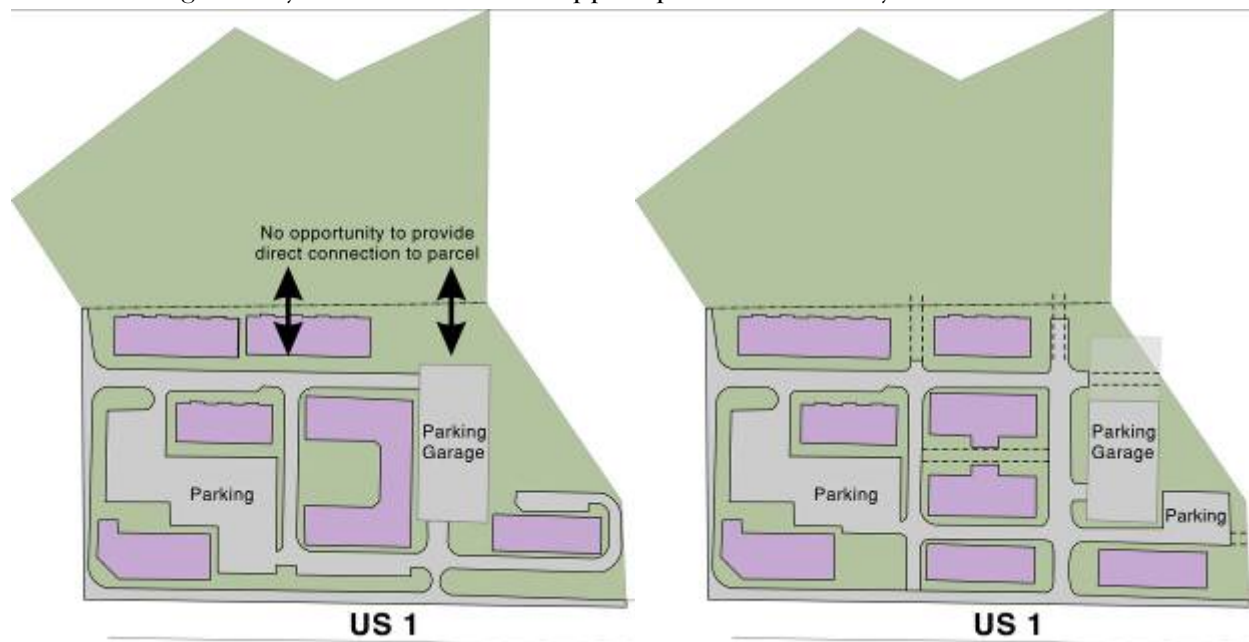


This vision for North Laurel shows new collector roads through the site linking US 1 and Whiskey Bottom road and site design that places buildings fronting the street.

Consistent block lengths provide the best opportunity to progress traffic on US 1.

Considering the competing needs of vehicular and pedestrian travel on US 1, and the ability to develop intersecting roads for potential signalization, quarter-mile signal spacing is recommended as the target signal spacing along US 1.

A finer-grained street network is needed to accommodate vehicular, bicycle, transit, and pedestrian travel and to reduce out-of-direction travel. Local street block lengths of 200 to 400 feet are generally recommended to support pedestrian activity. The ITE *Recommended*



Left: Roadways that dead-end into buildings, garages and parking lots inhibit pedestrian and bike circulation. Right: Encourage a more grid-like pattern that provides direct pedestrian routes and allows future roadway connections.

Practice for Context Sensitive Solutions in Designing Walkable Urban Thoroughfares states that, “pedestrian facilities should be spaced so block lengths in less dense areas (suburban or general urban) do not exceed 600 ft. (preferably 200 to 400 ft.)”

Development of the proposed connections was guided by the objectives listed here.

- Development of a more consistent, hierarchical roadway network made up of:
 - Major roadways spaced at ¼ mile intervals, continuing on both sides of US 1 where possible
 - Minor roadways or pedestrian connections spaced at 330 to 660 feet, depending on the intensity and type of development.
 - Improved multimodal access to local amenities including parks, schools, libraries, commercial centers, transit nodes, and trail heads.

Transportation Network and Connectivity

The roadway and path connections identified in the strategy should support and address:

- Public comments received at the Open House in July 2006 and the Public Meetings in June 2007;
- Desired signal spacing along US 1 (approximately ¼ mile) to support speed management and pedestrian accessibility; and
- Direct local circulation that will
 - Reduce dependence on US 1 for local trips,
 - Improve pedestrian and bicycle travel options, and
 - Protect neighborhoods from excessive cut-through traffic.

Specific issues that were considered as the proposed connections and recommended policy language were developed are discussed in the following sections organized according to corridor segment:

NORTH LAUREL

The area south of Whiskey Bottom Road exhibits a more grid-like roadway system than other places in the corridor. It also has potential for major redevelopment along and east of US 1. To the south, Laurel has a strict grid pattern of streets and a more walkable environment. These circumstances make the area south of Whiskey Bottom well suited to the walkable, main-street environment characterized in previous US 1 revitalization documents.

To achieve this, it is important to reinforce the grid pattern east of US 1 by providing several direct connections to US 1 and to Whiskey Bottom Road. The grid pattern will increase accessibility to and from the MARC station, improve the ability to route transit through this area, and enable walking and biking as viable modes of transport.

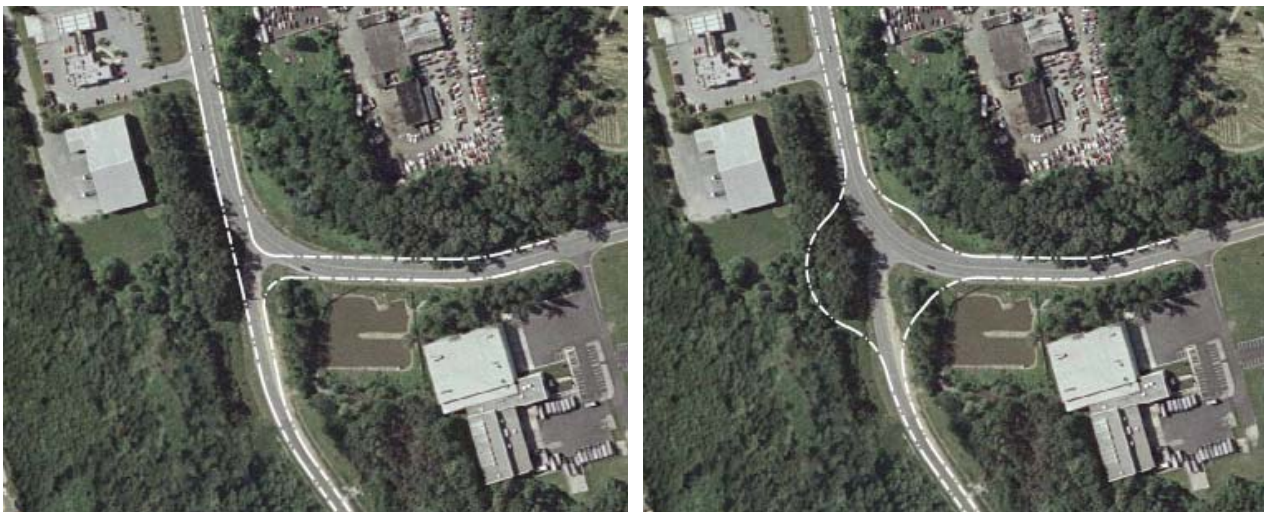
The west side of US 1 in this area is nearly built out with residential development. To the extent possible, connections should be made between the neighborhoods, the planned park, and the commercial centers that may develop in the CAC zone.

Limiting additional dependence on the US 1/Whiskey Bottom intersection is also important, as most development in the area is currently accessed through this intersection and it is forecast to fail in all future traffic scenarios. Multiple connections to US 1 and Whiskey Bottom Road on the east side of US 1 will help avoid further reliance on this intersection. Better connections to North Laurel Road and Meier Road on the west side of US 1 could reduce reliance on this intersection; however, these would be challenging connections because of the developed land uses.

DORSEY RUN ROAD

Dorsey Run Road is a major capital improvement project that will extend a major collector parallel to US 1 on the east side of the corridor. It passes through primarily industrially zoned land and is expected to carry most of this area's truck traffic, relieving US 1 of this burden.

The minimum driveway spacing on Dorsey Run Road is 250 feet, and industrial driveways are allowed direct access onto the road. There is no requirement to align driveways on opposite sides of the roadways, and no restriction of left-turns. In addition to accommodating truck traffic, this road should also be designed to accommodate pedestrian, bicycle, and transit travel to and from the employment centers that are expected to develop along it. Reducing curb cuts (driveways and intersections) along this road and concentrating access at fewer roadway connections rather than many individual driveways will improve safety and efficiency for all roadway users. Direct connections



Volumes suggest that the intersection of Dorsey Run Road and Dorsey Road should inform its redesign. A roundabout alternative (right) might be considered to provide equal access to Dorsey Road in the direction of the Dorsey MARC Station.

between US 1 and Dorsey Run Road should be provided at more frequent intervals to enable more direct travel between the destinations along US 1 and to avoid point-loading MD 175 and MD 103 (the only planned connections to US 1 and the regional network).

The diagrams above show two alternatives for the Dorsey Road/Dorsey Run Road intersection. In both alternatives, the intersection is realigned to give priority to movements between US 1 (to the north) and Dorsey Run Road to the south. Either intersection

alternative is expected to provide safety and operational improvements. Preliminary operational analysis indicates that either a signal or a single-lane roundabout could operate acceptably with 2030 forecast volumes.

NORTH ELKRIDGE

The topography and environmental features of the north Elkridge area challenge connectivity and transportation in this area. The Montgomery Road intersection is relied upon for access to most of the development in the area and operates under stressed conditions during peak hours. The planned signal at the new Elkridge Crossing development may relieve some of this congestion if connections are made to serve existing development.

The area on the west side of US 1 north of Bonnie View Lane is predominantly undeveloped. Although it is zoned residential, it is not likely to build out at the maximum permitted density due to the topography of the land. Developing another connection to US 1 to serve this area, if and when it does develop, is important to avoid overburdening the scenic Lawyers Hill Road and Montgomery Road.

The CSX railroad bridge over US 1 is another major constraint in this area. The bridge is quite narrow, leaving almost no room for pedestrian or bike amenities. There is currently demand for pedestrian and bike travel through this area. There are many commercial businesses north and south of the bridge, north of the bridge is a main access to Patapsco State Park, and southeast of the bridge is the connection to the East Coast Greenway facilities. Furthermore, the land on both sides of the bridge is zoned CAC, indicating potential for development of more intense, mixed-use activity.