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## **Introduction**

The purpose of the meeting, which was a continuation of the March 3 Complete Streets Implementation Team (CSIT) meeting, was to provide members of the CSIT an overview of new street types and review the comment log.

Jeff Riegner welcomed all attendees and reviewed the agenda.

Jeff led the group through the presentation attached to these minutes. He noted that suburban street types will be addressed first. Because revisions to the sections address some of the issues raised by members of the CSIT, the comment log will be discussed second.

## **New Street Types**

Jeff noted that street types for mixed-use contexts were discussed at the last CSIT meeting. Mixed-use street types apply to a small proportion of the County, including areas such as Downtown Columbia, Maple Lawn, and Columbia Gateway as it redevelops. Although some areas of eastern Howard County may redevelop as town centers, the majority of the eastern part of the County is suburban. The suburban street types are organized from larger street types to smaller street types. There are some common elements among the different street types but there are also some differences which will be highlighted.

### **Parkway**

Jeff first described the Parkway type, noting that the term parkway was chosen because it is frequently used to refer to these types of streets in Howard County. Both four- and six-lane divided roadways are shown since both types are currently used in Howard County. Similarities between the two parkway types include 11-foot travel lanes because speeds along these road types will exceed 45 mph. All of the guidance the CSIT has discussed so far concurs that 10-foot lanes are only appropriate where speeds are 45 mph or less. Due to the high vehicular speeds and volumes along this street type, 10-foot shared use paths are proposed for people walking and bicycling. No parking is included in this type because the land use would not require it, but 5-foot shoulders are proposed.

Differences between the parkway types include the median width. The 6-lane parkway type has a 16-foot median and the 4-lane section has a 30-foot median. The wider median is necessary to accommodate U-turns.

Jeff noted that the benefits of a 5-foot shoulder include providing space to plow snow. Although 5 feet is not enough room to accommodate a stopped car, the space can be used if there is an emergency. The shoulder also creates more physical separation between moving cars and people using the shared use path. Disadvantages to providing a shoulder include additional impervious surface area. A wider paved surface will likely cause speeds to increase. A shoulder was shown in the proposed section to facilitate conversation about whether a shoulder should be provided in this street type.

Jessica Bellah agreed that additional impervious surface is not a good thing, but asked whether a 5-foot shoulder provides an opportunity for running utilities. She noted that if utilities are in the shoulder instead of outside of the curb, they will not be impacted by tree roots or require disturbing cyclists and pedestrians when maintenance is necessary.

Jennifer Biddle asked Jeff if he received any comments from Kris Jagarapu (who joined the meeting after this comment was made). She noted that Department of Public Works (DPW) staff met to discuss the proposed street types but they had not yet completed their review. She commented that a 5-foot shoulder is not wide enough to accommodate a stopped vehicle since it does not provide the appropriate clearance for a passing vehicle. Many Howard County parkways do not have shoulders. DPW will need a little bit more time to review the proposed street types.



Jeff added that most parkways in Howard County do not have shoulders currently, and the question is whether a 5-foot shoulder is sufficient. Typically, sections utilities are placed under sidewalks or a shared use path. He asked whether placing utilities in the shoulder would allow BGE to complete maintenance without closing the sidewalk or shared use path outside of the curb.

Christiana Rigby asked Cory Summerson from Baltimore Gas and Electric (BGE) to provide some insight on whether utilities could be located in the shoulder. Cory responded that the utilities could be located there, but the adjacent vehicular lane would still need to be closed down for maintenance, which was confirmed by Jennifer B. Jeff clarified that a lane closure would be required whether there is no shoulder, a 5-foot shoulder, or an 8-foot shoulder.

Jessica noted that there is an equity issue when closures disproportionately impact people walking or biking. Closing one vehicular lane is better than closing the full roadway; it spreads the inconvenience of construction across all modes. Cory responded that cables only need to be replaced once every 30 years or so, and that the biggest disruption is during new installations.

Larry Schoen asked how other jurisdictions make decisions about shoulder and median widths. Jeff responded that for this type of roadway shoulders are usually provided except in retrofit situations. Since the typical sections are for new construction, most jurisdictions would show a 5-foot, 8-foot, or larger shoulder.

Larry noted that if the goal is designing a street that people will use, there should be space in the sidewalk zone for tables or other amenities for people. He noted the provision of a shoulder only helps cars. Jeff responded that Little Patuxent Parkway east of downtown Columbia and Broken Land Parkway approaching Route 32 are good examples of this street type. Buildings are set back from the roadway and have their own parking areas. The scenario that Larry is describing would be typical in mixed-use settings but not a suburban setting.

Christiana responded that when looking at new construction it is important to keep long term planning goals in mind. Even if a road is in a transition area between mixed-use and suburban, the eventual goal is to activate streets by providing more useful accommodations for people. She noted that her preference is for less impervious surface and that the shoulders add ten additional feet of crossing distance for pedestrians. She noted she is open to reasons why shoulders may be necessary.

Jessica asked whether it is possible to add bump-outs at corners to shorten pedestrian crossing distances. Christiana agreed that would help, especially when crossing the street with a stroller. She asked whether it would create issues for bicyclists in the shoulder. Jeff agreed that ten extra feet of crossing distance is an issue for pedestrians. He noted the shoulders are not explicitly designed for cyclists, who can use the shared use path. However, some cyclists may prefer to stay in the street because they are riding faster and may not want to slow for pedestrians using the path. In that instance curb extensions would pose a concern.

Chris commented that pedestrians and cyclists are off the street except in limited circumstances. He noted that managing speed is important for all road users including drivers.

Carl commented that the wider a roadway is the more real estate is needed and the greater the construction costs. Both issues matter to the private development community. The decision to retain a shoulder should be made only if there is a definitive purpose for it. If DPW decides they need a place to push snow that would be a valid reason, but the extra land requirement and cost is not insignificant.

Jeff noted that people are introducing more cons than pros regarding the provision of shoulders. He noted that the benefits of having a shoulder can be achieved by other means. For example, the tree zone could also be used to store snow that also provides separation between people and moving cars. However, an 8-foot shoulder would be necessary to accommodate broken down cars. If the County has not had significant issues with breakdowns on the many miles of parkways without shoulders that exist today, there is not a complete streets reason to add shoulders. Chad noted that on some parkways without shoulders it is impossible to avoid running over drainage grates.

Larry asked about the width of the medians, and whether it is important to accommodate U-turns. Jennifer B. responded that U-turns are necessary to reach driveways at a few places on Snowden River Parkway. Christiana noted she regularly uses the U-turns along Snowden River Parkway. Larry asked whether the location of driveways dictates where U-turns are necessary.

Jeff commented that several comments had been received about U-turns at past meetings. He asked whether there were typical circumstances where U-turns are required, or whether there are generally opportunities to turn left into or out of a specific driveway or side street. He noted the median could be narrowed if U-turns are not needed. Chad responded that it may depend on how long the blocks are. He agreed that it is better to not have too many U-turns, and that sending traffic to a controlled signal would be preferable. Tom Auyeung agreed with Chad, noting that on freeways a break in the median is required for emergency vehicles.

David Ramsay asked whether median minimums or maximums could be listed to provide flexibility. Jeff answered that was a possibility. For example, a four-lane parkway section should have a 30-foot median where U-turns are necessary.

Larry asked about whether it is important to have a median at all given its limited use for people. Jeff responded that the median provides a refuge for crossing pedestrians and bicyclists as well as significant safety benefits to people in cars. Larry asked whether that applies to speeds in the vicinity of 45 mph. Jeff responded that medians create safer conditions at all speeds.

Larry noted asked whether the median would ever have a “v” shape without trees. Jeff replied that curbs provide better separation for narrower medians. He noted that freeway medians often have a “v” shape for drainage, but providing curbs allows for a narrower median. A 16-foot minimum allows for a 6-foot pedestrian refuge and a 10-foot left turn lane. In circumstances where a double left turn lane is needed, the median would need to be wider.

Carl noted that there is an aesthetic benefit to the parkway design. Jeff replied that the trees also have a modest but measurable impact on travel speed. Jessica added that they have a modest reduction on the heat island effect.

Kris Jagarapu joined the meeting and asked if there was any discussion about the 5-foot shoulder and questioned its purpose. Jeff noted that the group seemed to reach consensus that shoulders are not necessary. He shared that Chad commented that a one-foot offset to the curb would keep vehicles off the drainage grates on higher-speed, higher-volume streets. John Seefried noted that 12-foot lanes are helpful in this instance.

Chris asked whether a marked 11-foot lane with a one-foot area for storm drainage could be an appropriate treatment. John affirmed that would work, or it could be shown as a 12-foot lane. Chris replied that showing 11-foot lanes may help with speed management and prevent people from driving over the grates. Jeff agreed that striping a one-foot offset from the curb would make sense. He asked whether the edge of the drainage grate frame is flush with the edge of the gutter pan or whether it extends into the travel lane. John confirmed that the drainage grate extends into the travel lane.

Carl asked to discuss the differences between the 10-foot proposed tree zone and a 6-foot tree zone. He noted that the 6-foot tree zone has been working for the county and asked whether a wider tree zone would provide a safety improvement. A 10-foot tree zone would require more land and is not favorable from a real estate perspective. Jeff replied that the wider zone provides a qualitative benefit, and that he is not aware of any studies requiring that amount of space. He agreed that there are a lot of engineering and landscaping reasons for a 6-foot minimum, but anything wider just provides a greater degree of comfort for vulnerable users.

Carl shared he polled a significant number of developers and builders who shared that dry utilities never go into the tree zone, so it does not need to be wider for that reason. Dry utilities are usually placed under the sidewalk or outside of the sidewalk in an easement. Jeff agreed, noting the phrase “tree zone/utility zone” was changed to “tree zone” for that reason. Carl asked that the tree zone be reduced to 6 feet wide in the suburban sections to match what is shown in the mixed-use sections. Jeff asked if he would be comfortable with a 6-foot minimum requirement, so that if it was desirable to provide additional space that is allowed. John noted it should be clarified that 6 feet has to be



measured from the back of the curb. Carl agreed that six feet from the back of the curb is currently in the Design Manual. John noted that any narrower would require a root barrier, and clarified that if the measurement is taken from the face of the gutter plan the measurement would be about 8 feet if it includes the curb and gutter. Carl clarified that he was just referring to the green strip from back of curb to the sidewalk or shared use path.

Jeff noted that the tree zone dimensions will be refined based on the discussions. He asked if there were any objections, concerns, or support to that approach. Kris responded that there are locations with 6-foot-wide tree zones where the roots cause adjacent sidewalks to heave, even in newer subdivisions that are less than 10 years old. The County is already receiving requests to go back and fix the sidewalks. The current Design Manual calls for a root barrier if the tree zone is less than 6 feet wide, but if there is space it may be good if the tree zone is a little bit wider. Kris noted he understands Carl's concern with making the right-of-way wider than what is needed.

Jeff asked whether the County requires the use of a particular soil mix or has compaction requirements for the soils around street trees. In areas of retrofit it is possible to provide a looser soil mix or greater excavation of in situ soils. Longer tree trenches in a narrow space provides more space for roots allow which allows them to extend along the space. Carl responded that there is incredible variation in how street trees are installed depending on the landscaper. John replied that he is not familiar with a soil mix specified for landscaping, but would check.

Larry noted he had some questions about higher-speed roadways. He asked for clarification that roads like Little Patuxent Parkway are not being discussed. He noted medians may help with safety, but there are a lot of pedestrian crashes and deaths along roads with medians because they reduce friction between cars going in opposite directions and encourage speeding. Jeff replied that medians also provide a refuge for pedestrians, and based on 30 years of experience, it is not appropriate to eliminate medians and a pedestrian refuge for streets this wide with traffic that travels at higher speeds. It would be appropriate to note that the parkway type is intended for certain speeds and above. Larry clarified that parkway street types are not intended for places where the pedestrian zone is expected to be activated, and that these are more through routes. Jeff agreed, noting that adjacent properties will be set back from the right-of-way. Larry noted that if buildings are set back and there are pedestrian uses between those buildings, the road profile would allow for a shared use path or pedestrian zone further back from the roadway closer to the buildings. Jeff replied that is one of the purposes of the 6-foot minimum tree zone. If the designer of a roadway wants to install the path 20 feet back from the roadway, they are welcome to do so.

Jeff asked if everyone was comfortable with a 6-foot minimum tree zone. There were strong arguments in favor of this size but there is also a benefit of providing additional width to accommodate tree roots. He asked whether it possible to address damage to sidewalks without increasing the width. He asked whether the County's inspection process for private development allows inspectors to make sure that tree pits are big enough and not highly compacted when soil is reinstalled. He noted that ensuring planting requirements are met is easy for County funded projects but more difficult for privately built streets. John replied that the County does not currently have that type of standard. Existing regulations require the tilling of the top 6 inches of soil, but there is nothing that inspectors could use in the current standards.

Jessica asked if the County differentiates between the types of trees, noting that there is a big difference between a maple tree and something that will grow to 40-50 feet. Some species have surface root growth instead of deep root growth. John replied that the County allows specific trees, but he could not speak to how regulations could mitigate sidewalk issues. Jessica noted that a 10-foot width allows for more variability in tree species, but the concerns with right-of-way requirements are understandable.

Kris noted that the County does maintain an approved tree list, and if there are problems with a certain species they are removed from the list. For example, ash trees were eliminated from the list in 2004. The County used to have the same types of trees along the roadway, but now the preference is to mix species in case of blight that impacts specific tree species. Some subdivisions only had ash trees and all the mature trees died at the same time, requiring the County to remove and replace every tree along a street.

Jeff offered to conduct more research on the issue to see if it is possible to provide a good maintainable street tree environment within a 6-foot space between the back of the curb and the sidewalk/shared use path. If that is not possible the issue will be revisited with the CSIT.

### **Neighborhood Connector**

Jeff introduced the Neighborhood Connector street type as a common street type in Howard County. He noted there are many places in Columbia where there are 3-lane cross sections with a single travel lane in each direction and a two-way left turn lane or median that is either striped or an island with street trees. In most instances these streets have sidewalks on both sides as opposed to a shared use path which is proposed in Option 1 of this type. Option 2 shows an on-street buffered bike lane, but is only appropriate where speeds are less than 35 mph. These streets typically have speeds between 35 to 45 mph depending on the alignment. Today, most of these streets have shoulders, but it is unclear if shoulders exist because the streets were previously four-lane streets that were reduced to three lanes. There are on-street parking and no-parking streets proposed for each option.

Jennifer White commented that the speed limit threshold that triggers a shared use path instead of buffered bike lane should be lowered from 35 mph to 30 mph, and clarified that the threshold should refer to operating speed not posted speed. She noted she shared an updated chart from the AASHTO bike guide that could be used as a resource to guide the selection of an appropriate bicycle treatment.

Jeff clarified that Option 1 offers a fully separated treatment where bicycles use a shared use path instead of the street. Option 2 shows a buffered bike lane, which Jennifer W. suggested is not appropriate at speeds above 30 mph. Jeff agreed in principle, and noted that the Level of Traffic Stress (LTS) guidance states that a buffered bike lane would be appropriate at 35 mph, while the FHWA Bikeway Selection Guide recommends a lower threshold.

Christiana asked about the benefit of not having a buffered bike lane if speeds are in the range of 30 to 35 mph. She noted that there is a financial cost to providing a shared use path, but that a lot of the data that has been coming out lately notes that buffered bike lanes do not provide a sufficient level of safety for people on bikes or drivers.

Jeff replied that speed is what would trigger the selection of Option 2 (shared use path) instead of Option 1 (buffered bike lane). He noted if it is possible to maintain speeds below 35 mph, it is generally accepted that on-street bike lanes are appropriate. Option 1 and Option 2 do have a difference in width which also depends on whether shoulders are included for Option 1. If shoulders are eliminated for this street type, the total width of pavement for Option 1 (shared use path) is 52 feet, with a total pavement width of 56 feet for Option 2 (buffered bike lane). Chris observed that the extra width stems from the provision of the buffer.

Jessica asked if there is a difference in material that would also impact cost, noting that the shared use path would require an asphalt base which would require more frequent replacement as opposed to a concrete sidewalk which is longer lasting. Jeff replied that there is no reason to not construct a concrete shared use path other than cost. Option 1 does offer a lower LTS, accommodates a wider range of users, and maintains a similar width to Option 2. He also noted that stormwater that drains off a road surface subject to oil and grease is a worse quality than stormwater that drains off a shared use path. Option 2 could be a good approach for retrofits where the current street width is larger and the right-of-way is constrained.

Jessica asked how many curb cuts are anticipated along this type of street. She noted that a shared use path is interrupted at every curb cut or driveway, as opposed to a on-street bikeway that provides a more continuous user experience. Jeff agreed that more frequent interruptions are a tradeoff when using shared use paths. He noted that some local access would be provided along this type of street but it should not be too frequent.

Larry shared he has seen design details that show a colored bike lane adjacent to private driveways to serve as a visual reminder that a cyclist may be present. He asked when that type of detail would be available. Jeff replied that in other jurisdictions that type of treatment is applied at higher volume commercial driveways, but not at residential driveways. That type of detail will be discussed when Chapter 5 is reviewed.



Larry asked why the outside buffer changes in size between different street types. Jeff noted that is to accommodate all of the features within the proposed right of way. He noted that right-of-way number can change and does not have to be an even ten feet. He noted that Option 1 with parking may be 82 feet to allow for space to build a sidewalk.

Larry noted he was skeptical that a road of this type would have a prevailing speed of 35 mph or less given the size of the right of way and the width of the lanes, concluding Option 2 is not realistic. He also noted his objection to a wider travel lane because it will encourage higher speed motor vehicle traffic. Jeff replied in light of all of the comments received, it may make sense to retain Option 1 and eliminate Option 2. Larry agreed, but noted that Option 2 should be kept as a treatment for retrofitting existing roadways. Jeff noted that based on feedback, Option 1 would be modified by eliminating the shoulder in the no parking option.

Chris noted that Option 1 may be easier to build for developers. The shared use path on both sides may seem like a lot to construct, but if you look at overall widths and the amount of impervious surface, the path option has less impervious surface as long as shoulders are not included. Jeff added that the pavement section for the shared use path would be lighter than the pavement section for a shoulder or parking lane. The consensus of the group was to eliminate Option 2.

Kris commented that the neighborhood connector options are similar to a collector roadway in the County. Jeff noted that there is not a tight linkage between street design and functional classification, mentioning Cradlerock Way as an example. Kris replied that it is helpful to see the proposed street types, but asked whether driveways will be present on this roadway type. He explained currently, driveways do not front on major collectors but they do on minor collectors. He noted the major collector requires a 60-foot right of way, while minor collectors only require a 50-foot right of way. The dimensions on the proposed sections are 90 feet, which is more similar to a minor arterial, which requires 100 feet in terms of right of way width. The proposed street function would be more similar to a residential neighborhood street. Jeff replied that based on feedback there should not be driveways along this street type. It has been difficult to understand how street design is informed by highway classification. The guidance in the manual appears to be applied in the field differently, likely because much of the county predates the design standards. This street type can be noted as appropriate where driveways are not present.

Kris noted this would have an impact on the cross section being proposed, because if there are no driveways it may be desirable to have parking on the road. He asked about the difference in right-of-way width for the parking and no-parking options. Jeff replied that based on the discussions the right-of-way width can be reduced. In the no parking option if the shoulders are eliminated and the tree zones are reduced to 6 feet a 70-foot right of way would be required as opposed to the 90-foot right of way shown. It is likely not possible to get to an 80-foot right of way for the on-street parking option.

Kris commented that the dimensions of the two-way left turn lane seem narrow, and asked if it is even necessary. He acknowledged that if the intersections are closely spaced the two-way left turn lane may be necessary, and asked if it could be a painted median in places where left turns are not as frequent. He asked for clarification on how this roadway type would function in a residential area. Kris noted that a minor collector has 28 feet of asphalt and a major collector has 40 feet of asphalt. These cross sections propose going to 38 feet of asphalt.

Jeff showed an image of Cradlerock Way as an example of a no-parking street that influenced this proposed street type. He noted that Cradlerock is about 40 feet curb-to-curb, with striped medians and some left turn lanes. There are a few locations where there are small raised median islands. Christiana noted that residents who live off Cradlerock Way often complain about speeding and the width of the roadway. Jeff noted the section can be modified to provide a two-way left turn lane only where volume warrants. The more common condition would be similar to the neighborhood street type where the two-way left turn lane is not necessary. The neighborhood street type features on-street buffered bike lanes because there are too many driveways to realistically accommodate a shared use path. The neighborhood street would work for streets with lower volumes and lower speeds, while the neighborhood connector would need the two-way left turn lane.

Christiana requested clarification on when a two-way left turn lane is necessary. She observed that cars seem to go slower when there is no median or divider between them and the two-way left turn lane seems to facilitate an unimpeded flow of vehicular traffic. She asked what the criteria is for adding a two-way left turn lane. Jeff replied that a two-way left turn lane is required when left-turning vehicles have to wait for a gap in traffic resulting in backups for through traffic. Where traffic volumes are low that wait is not long and it will not result in significant delays. Once volumes reach a certain threshold, which is usually around 12,000 cars a day, those left turning vehicles have to wait too long to find a gap, backing up cars behind them. Basically, the decision revolves around the volume of left-turning cars and the number of gaps.

Kris added that the distance between intersections can also influence the decision to provide a two-way left turn lane. On Cradlerock, intersections are 500 to 2,000 feet apart. If a driver is on a main road trying to make a left turn onto a side street, they utilize the turn lane. If a left-turn lane is required every 500 feet, it is important to maintain a consistent width throughout the corridor. If entering the roadway from a side street you can also use the turn lane to join the flow of traffic. It is not necessary to put a two-way left turn lane between blocks located within 500 feet. It depends on the layout of the entire neighborhood. Centennial Lane is an example where block lengths are too long and there is a painted median for the entire corridor to prevent the lanes from weaving in and out.

Christiana commented that she has been looking at existing streets from a different perspective, viewing the elimination of two-way left turn lanes as a way to accommodate bike lanes. For example, McGaw Road near Wegmans would be a better street if there wasn't a center turn lane and instead had bike lanes on either side. She agreed that it is important to have a continuous expectation from point A to point B.

Larry asked if the implication is that traffic volumes on Cradlerock may not warrant any kind of left turn lanes. Christiana asked when the studies are done to determine whether center left-turn lanes are necessary. It is important to understand what the vehicle volume thresholds are for stop signs and turn lanes.

Jeff observed that the question seems to be what are the factors that would lead to selecting a neighborhood connector street type as opposed to a neighborhood street. Traffic conditions would have to warrant a center turn lane. Neighborhood streets would not require a center turn lane and the street would be narrower, with lower speeds and bike lanes.

Christiana replied that she is used to working to get protected facilities even though money is an issue. Her preference is for the safest option for the most users, especially since the street types will be a foundational document for the Design Manual revisions.

Jennifer B. noted it is more difficult to look at the street types as a foundational document because evaluating an appropriate street type requires looking at more than just speeds and the facilities provided for cars and bikes. It also requires looking at the origins and destinations of who is using the facility. She pointed to Homespun Drive as a street frequently used as a cut through to provide insight into DPW's decision making.

Jessica acknowledged that from DPW's perspective, the goal is for the curb-to-curb dimension to be consistent along a corridor. She noted that on Cradlerock this approach results in a lot of striped median that is not use for turning. She asked if that striped median presents an opportunity for plantings, or some other way to ensure the space does not encourage speeding. She noted she only sees medians on larger high-speed roadways. Kris replied that medians are possible if block lengths are longer. The guidance could suggest the use of grassy medians instead of a planted median. DPW has installed a lot of grass medians as part of retrofit capital projects, but the preference is to install them up front if possible. The comment to install a grassy median would be provided as part of the plan review process, but the Design Manual could provide guidance. For example, if block lengths are longer than 1,000 feet, a two-way left turn lane should be considered along with a raised median instead of a painted median.

Jeff cautioned that if shoulders are not provided, it is important to make sure that there is significant space for emergency vehicle access between the curbs. Jessica asked if it would be possible to provide a rolled curb so that people could pull up and get out of the way of an emergency vehicle. She also asked if a one- or two-foot shoulder would suffice. Jeff replied that the team will explore options.





## Neighborhood Street

Jeff introduced the Neighborhood Street type, a two-lane roadway where speed and volume is low enough that a buffered bike lane would provide an acceptable LTS. This street type also includes sidewalks on both sides of the street and parking and no-parking options. If there isn't enough traffic to warrant a three-lane section, this is what the street might look like.

Jennifer W. observed that buffered bike lanes are the recommended bicycle treatment and asked for more details about why they are appropriate instead of separate bike lanes or conventional bike lanes. Jeff replied that the team has been using federal design guidance including the *Bikeway Selection Guide* as well as the LTS criteria, designing in most cases for LTS 2 or better. Both sets of guidance indicate that a buffered bike lane is acceptable at a lower speed. The *Bikeway Selection Guide* sets that threshold at 30 mph or less and the LTS criteria sets it at 35 mph or less. This street would be designed for 30 mph or less, which means a buffered bike lane would work. If greater separation is required, a shared use path would be preferred for new construction because it is more comfortable for new users than a separated bike lane. For retrofit situations a separated bike lane may make more sense due to right of way constraints.

Larry asked whether the neighborhood street buffered bike lanes would be considered LTS 1 or 2. Chris responded they would be considered 2, and that 1 would require a separated bike lane or shared use path. Larry asked what would be used to provide physical separation. Jeff replied it could be a curb, flex post, or raised median. Larry asked whether it could be provided by vertical separation or colored pavement markings. Jeff replied that colored pavement markings would not decrease the LTS, and vertical separation is extremely expensive and difficult from a drainage perspective. There are a number of different design treatments that would work including concrete curbs, plastic segments that have flex posts that stick up from them, and plain flex posts.

Larry observed that one of the fundamental issues is that if a proposed neighborhood street connects residents to schools, libraries, or neighborhood centers, a way for the least skilled bike user to get from their home to the destination should be provided. If there is an alternate way to access those destinations, for example, via a Columbia path, the on-street buffered bike lanes are sufficient. However, if the neighborhood street is the only available connection, it should be LTS 1. Christiana agreed with Larry and asked whether there is a plowable bike lane delineator. Jeff replied that there is not, and physical separation would require DPW to have smaller plows and street cleaners. Alternately, the separators could be removable when plowing is needed. Some municipalities buy equipment to perform that maintenance. Montreal, for example, removes all separated bike lane delineators each winter. Larry asked how Montgomery County handles Nebel Street. Chris responded that they have a small plow. Larry noted he was speaking for himself and not all cyclists, but he would prefer physical protection 350 days of the year and allow snow storage in the bike lanes during snow events.

Chris observed that an option that provides physical protection in the 2-foot buffer or shows a shared use path may be necessary for school zones or wherever LTS 1 is necessary. Jeff noted that flex posts might suggest a 3-foot buffer zone especially because vehicular lanes are 10 feet wide. He noted that a wider buffer would still fit within the 60-foot right of way shown.

Kris asked whether the neighborhood street is supposed to be a minor collector or a local road. If it is a local road there will be a lot of driveways and houses where parking might be preferred to a physically protected bike lane. A shared use path would allow for LTS 1 and on-street parking. He asked why a shared use path was not shown as an option. Jeff replied that a shared use path was not shown because it was not needed to provide LTS 2, but a shared use path option can be developed. This street type is more analogous to a minor collector, which means there would be a number of driveways. Shared use paths crossing over driveways do present some concern, since drivers are less likely to see a cyclist traveling along a path. There is not a strong opinion for or against buffered bike lanes as opposed to shared use paths in this circumstance but that is one downside of a shared use path. Kris noted that buffered bike lanes would still have the same issue with driveways. Jeff replied that often, drivers look in the direction that they expect a car, which would be the same direction a cyclist using a buffered bike lane would be traveling from. Cyclists using a shared use path could be coming from either direction. It is not a fatal flaw, it is just something to consider.

Larry asked what the warrant is for a yellow line in the middle of neighborhood streets. The line can make cyclists feel less safe in situations with limited space because drivers are hesitant to cross over the line. Jeff responded that is a concern in places where bikes share the roadway with motor vehicles, but when there is a designated bike lane that is less of an issue because cars can safely overtake cyclists. Larry asked whether there are some instances where showing the center line is not necessary. Jeff replied that the team has not gotten to that level of detail.

Chris proposed showing an additional two-way street type with a shared use path that would be LTS 1. Kris agreed. Larry noted it would be preferred if the path did not cross over multiple driveways, and asked whether it would be possible to provide a path behind adjacent development. Chris noted that it would be impossible to show that type of connection on the proposed sections. Larry asked if it could be shown as a footnote. Chris agreed that those back connections work very well, but are also often dictated by local constraints.

Jeff asked whether people want to see an alternative with a shared use path instead of buffered bike lanes.

Christiana noted she shared concerns about the effectiveness of bike lanes that are not physically protected. Neighborhoods have a lot of people, which is why it is important to prioritize safety. There are sidewalks on both sides of this street type. Although a shared use path may not be necessary, traffic speed should be thought of something to mitigate rather than something to plan around. Motor vehicles should be able to get in and out of a neighborhood, but safely moving around a neighborhood without a car should also be prioritized.

Larry agreed that providing options with guidance about how to choose a preferred treatment makes sense. Jeff agreed with that approach, noting that driveway frequency could be one consideration. Larry responded that physical protection whether by curb or flex post could also be a valid treatment option.

Carl noted that if the bike lane from the no-parking neighborhood street is shown as a shared use path, the street will only be 20 feet curb to curb which is too narrow. Jeff replied that moving towards a narrower street is not necessarily a bad idea if on-street parking is not allowed. The conversation at the last CSIT meeting regarding lane width was in consideration of on-street parking issues. There are circumstances today where on-street parking is prohibited, such as the example Larry provided of a two-lane street where parking is prohibited with a high tree canopy. Chris noted that West Running Brook Road south of Centennial Park is a similar street. Jessica noted that one of the primary features of West Running Brook is that it does not have a lot of cul-de-sac streets. Larry agreed that West Running Brook is very comfortable to ride on with children since people do not park on the street, there is a full tree canopy, and there is no double yellow line. Kris noted that this roadway has a long history and required an agreement that residents would not park on the street. The road was not originally built this way, it was modified. Chris asked whether the roadway was narrowed, and Kris said it was but not due to traffic issues, but because of issues with the trees. Chris replied that it is a great example of a street that works well for all road users. It is well sized for slow speed use by all modes and the trees make a big difference. Kris replied that speed was a complaint. There used to be traffic circles along the roadway which were eliminated about 8 years ago. Speed humps were also added at that time.

Carl commented that Howard County is not the first jurisdiction to implement bicycle facilities and asked whether it is possible to draw from the literature and experience from other places as to whether what is shown would work. The idea of going to a lower LTS than 2 is not something that seems to be pursued by many other jurisdictions. There is a body of knowledge about what creates a safe situation given the amount of traffic and roadway geometry. He expressed concern that there may be a situation where costs are being weighted against providing additional safety. Jeff agreed that following the existing literature is important, and that the LTS methodology and bicycle design guidance has been derived from the experiences of agencies across the country. The industry has determined that some type of bike facility is necessary once prevailing speeds exceed 25 mph. Physical separation should be considered at a 30 or 35 mph threshold. Above 35 mph physical separation is desirable. The issue with bicycle facility design is that it is not as mature a field as traffic engineering for cars, which has been around for 100 years. Bicycle facility design has not gotten into this level of detail until 20 years ago. It is impossible to guarantee that what is discussed now will be appropriate 10 years from now. Guiding documents are being followed for all the bicycle facility recommendations.

## **Alley**

Kris asked if the alley is intended to be private. Jeff asked whether all alleys are currently private in the county. Kris replied that the county does not maintain any alleys, but that the use in common driveway requires a 24-foot easement, which is wider than the 20-foot easement being shown. Chad noted that for residential properties the pavement width is 16 feet which also fits within the 24-foot right of way.

Carl noted they used a lot of alleys in Maple Lawn. The geometry is a 24-foot HOA owned space. In most cases the alley is 16 feet edge to edge, but there are places it needs to be widened for trash trucks. There are no curbs and an inverted crown so drainage runs down the center. He confirmed they are owned privately.

## **Industrial Street**

Jeff introduced the Industrial street type. He noted that the current standard for Howard County is 40 feet curb-to-curb. In looking at a number of examples of industrial streets, there were also 42-foot wide streets. There is a lot of variation in how the streets are used. In some places they are striped as two-lanes wide with no on-street parking. While parking may not be prohibited it did not seem to happen in practice. Some streets were striped as 3 lane roadways. Other streets featured 2-lane roadways with heavily used on-street parking. Flexibility seems to be a requirement of this street type. A single shared use path is also being recommended which will allow access for employees to get to and from their jobs.

Christiana agreed with the provision of a single shared use path. She noted that in the Guilford area a safe way to walk to lunch or access transit would be a big improvement. Larry observed that lower-paid workers in some industrial areas rely on walking and biking.

Kris asked whether it would be possible to provide a shared use path or sidewalk on both sides. He noted the current configuration is off-center, and there could be businesses without sidewalk access. If there is on-street parking it would be nice if the sidewalks are tied into the industrial buildings as opposed to limiting that access to one side of the roadway.

Paul Walsky noted that turning radii also need to be considered since trucks often drive over the curbs. Jeff replied that would be addressed during through the intersection design section of the Design Manual. The design vehicles for industrial streets will be larger than in non-industrial areas.

Jeff recommended adding a sidewalk opposite the shared use path to address Kris's suggestion. Kris replied that it could be a 5-foot sidewalk. He observed the right of way increased from 60 feet to 70 feet, which should provide sufficient space for a shared use path and a sidewalk.

Jeff showed the other option, which does not allow for on-street parking. He noted that there are not many industrial streets in Howard County without parking, but it is very common in other jurisdictions. He asked the CSIT if there is a need for 24-foot industrial streets without on-street parking.

Jessica replied that she lives and works in Columbia, but generally the changing business types in industrial land use areas tend to include retail and service use, citing warehouse brew pubs as an example. These types of uses generate more pedestrian and bicyclist use than often considered in industrial zones. Those uses also support on-street parking. Christiana added that it is also important to consider adjacent land uses. An industrial area between two residential neighborhoods has different types of traffic than roads like Dorsey Run Road which is exclusively industrial.

Jeff noted the preference for on-street parking option which allows for more flexibly respond to changing land use patterns is preferred. Larry agreed, noting that the 42-foot width gives a lot of flexibility.

## Country Road and Rural Development Street

Jeff briefly mentioned the Country Road and Rural Development Street types. Rural development streets are local streets in rural areas. They feature an open section and are 24 feet wide. Since development is lower density on-street parking should not be an issue. Jeff requested comments via email.

Kris noted that the country road type should have 12-foot wide lanes since farm equipment could be present. He recommended changing the swale to 10 feet on each side and using 8-foot shoulders to maintain a 50-foot right of way.

Jeff observed that pedestrian use is likely to be infrequent in rural locations due to the distance between origins and destinations. A wide shoulder is a typical accommodation for walking and biking in these circumstances.

Paul noted that when there are new residential developments along country roads it presents an opportunity to provide a shared use path that runs with the contours into the site. That would separate walkers and cyclists from the primary road section. Jeff replied that a shared use path option could be shown.

Kris noted that both options do not show trees since trees would be located outside of the right of way.

Paul noted that if the path was located outside of the right of way the county would have an easement. There also could be an easement for trees if necessary. Every road is unique, and the designer should have the flexibility to do something that fits the site.

### Next Steps

Jeff noted that there is not sufficient time to review the comment log and asked that CSIT members review it on their own time. A number of comments have already been addressed or are no longer valid because the team has refined or modified the street types over time. He requested CSIT members send an email by the end of the week with any further issues.

Action items from this meeting include:

- CSIT members are to review the comment log and provide comments via email by March 12
- WRA will modify street types based on feedback received at the March CSIT meetings for the April CSIT meeting

The next regularly scheduled CSIT meeting is scheduled for Wednesday, April 7 at 3:00 pm. An additional April CSIT meeting will be scheduled ASAP.



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Leah Kacanda, AICP

