

Comments on Winooski Ave Transportation Study Initial Draft Concepts

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Note: these comments take into account discussions about this project at Burlington Walk-Bike Council meetings, plus additional discussions with members of the walking and biking community. However, they are primarily based on my own opinions and research and do not represent an official position of the Burlington Walk-Bike Council.

These comments refer to the initial draft concepts as presented to the Project Advisory Committee on January 29, 2019.

Please let me know if you have questions about any of these comments.

Summary of main points

- Concerns over on-street parking removal concerns should not be allowed to prevent installation of safe bike facilities in both directions; there are many opportunities for off-street parking in the northern section.
- Do not widen the roadway or remove green space, except perhaps for limited, targeted locations
- Every effort should be made to include separated and protected bike lanes since only that will fully meet the goals of this project.
- Alternative 3 should be given strong consideration as the only proposal that would provide protected bike lanes on the entire corridor; using raised pavement would help mitigate the concerns with crossing traffic.
- For alternatives 1 and 2, move on-street parking to the east side to reduce dooring risks and allow for a southbound protected bike lane between Decatur and Pearl. Alternative 2 is preferable to Alternative 1.
- The current Alternative 4 should be rejected; the proposed option of 2-way traffic with northbound sharrows between Pearl and Union is less preferable than A1, A2, or A3.
- Roundabout designs should reasonably and safely accommodate bicycle traffic, and should not force bicyclists to either ride in traffic or dismount to join pedestrian traffic.
- If mini-roundabouts downtown can include bike crossings separate from pedestrians then the central turning lane could possibly be eliminated, allowing for protected bike lanes in each direction
- Signalized intersections should include dedicated bicycle and pedestrian signals and disallow right turns on red.
- Traffic into the City Market entrance should be limited or eliminated to reduce conflicts and backups for pedestrians, bikes, and motorized traffic

On-Street parking

Removal of on-street parking on at least one side of the street is necessary to make room for bike lanes on many sections of Winooski Ave. I understand that some people will be upset by the removal of on-street parking near their home or business, and am somewhat sympathetic. I therefore think that the project team should work hard to identify alternative parking options. It is my understanding that there are a number of underutilized off-street parking lots in the portions north of North St. In addition, some people may be parking on the street out of convenience rather than necessity. Finally, it is my understanding that removal of parking and improved biking facilities have often been very good for local businesses.

In any case, I strongly believe that it does not make sense to devote a large portion of a major road to on-street parking. I think shared parking is a good thing, and am not opposed to on-street parking on small residential streets. But for this major route through and to the heart of the city, I think transportation needs are a higher priority than the needs for on-street vehicle storage. Parking removal, at least on one side, is necessary to make this street friendlier and safer for bicycling.

Indeed, a truly transformative plan for this street would involve removing all the on-street parking on both sides (although that still wouldn't resolve the issues downtown). That would allow ample room for separated and protected bike lanes in both directions. I would call that a long-term goal, though; I am not personally suggesting that at this time (although I would certainly support it).

Road-widening and green space removal

I strongly oppose widening the road and removing green space in any portion of Winooski Ave. It would significantly reduce the pedestrian-friendliness of the street, possibly encourage faster driving, increase storm water runoff problems, and be extremely expensive. The only exception I would consider is for limited, targeted areas (for example, to accommodate a bus stop pullout).

Protected Bike Lanes

The first two components of the vision for this project are the following:

- Traveling along and across Winooski Avenue will be safe, inviting, and convenient for people of all ages and abilities using any mode of transportation.
- Walking and bicycling will be viable and enjoyable ways to travel this corridor. Improvements will encourage active travel and alternatives to personal vehicle use.

For a large portion of the population, especially kids and older adults, biking on the road, even in a designated bike lane, does not feel “safe, inviting, and convenient.” Only separated bicycle facilities would truly transform this corridor into a place where biking will truly be a “viable and enjoyable” way to travel for people “of all ages and abilities.” This is consistent also with the goals and recommendations of PlanBTV Walk-Bike plan, in which the 5-Year Action Plan shows protected bike lanes the entire length of Winooski Ave.

I recognize that plans such as PlanBTV Walk-Bike do not necessarily take into account all the engineering considerations that go into designing actual facilities. To actually be installed, a design must both fit within the space that is available and be safe. Fitting separate, protected bike facilities within this constrained corridor may be challenging. But I think it is very important that every

consideration be given to finding a way to accommodate separated, protected bike lanes on all portions of Winooski Ave., especially downtown.

That said, I also want to make clear that even standard bike lanes will make a huge difference on Winooski Ave. If it turns out not to be possible to install protected bike lanes in all segments, we should still ensure that continuous bike lanes of some kind are installed.

Alternative 3

At the January Project Advisory Committee meeting, some questions were raised (including by myself) about whether A3, with a 2-way Protected Bike Lane the length of the corridor, would work because of the many driveways and cross streets. There was some suggestion that this alternative might be dropped from consideration for that reason.

I strongly believe that this alternative should remain in consideration, because it is the only alternative currently being considered that provides separated, protected bike lanes. While there are legitimate concerns about whether it can be done safely, considering the limited space and many crossings, I think it is worth some effort to find ways to mitigate and overcome these concerns in order to achieve a true protected lane. This alternative would also eliminate all door zone bike lanes, with a bike lane adjacent to parked cars, as exist in the other alternatives.

First, I want to point out that the sections that would include counter-flow bike lanes under the other alternatives (south of Main, and between Pearl and Decatur) would have similar issues with crossing driveways and intersections to the 2-way PBL. For the most part these are more residential and less busy areas, and I think that they can accommodate counter-flow and 2-way bike lanes with appropriate design and educational outreach to residents. The main sections for which there would be a more significant concern with crossing traffic would be downtown and north of Union St.

One way to make a 2-way PBL safer in these sections is to raise the surface of the two-way bike lane to the level of the curb, with a mountable angled curb between the bikeway and the motor vehicle lanes. Driveways and commercial entrances would have a slightly shallower angle. This would allow motor vehicles to cross the bike lanes at driveways but would cause them to reduce their speed and take notice of the transition. It may make sense to use flexible bollards on either side of major entrances to make them more distinguishable, but in general this approach would significantly reduce the need for bollards or other barriers, reducing maintenance concerns while allowing access to emergency vehicles. It may also be possible to raise the crossing at intersections as well, serving to slow crossing traffic there as well.

While this option may be expensive, it has the potential to truly make this corridor safe, inviting, and convenient for cyclists of all ages and abilities. And I'd say that is worth an investment.

I would recommend raised pavement for as much of the corridor as possible, and at least for the sections between Main and Pearl, and between Union and Archibald. But all sections of the 2-way bike lane should be separated and protected from motorized traffic in some way. The current design drawings do not show protection of any kind (just a buffer) in the northern and southern sections. If a raised path is not feasible in the short term in any particular area, use of flexible bollards in the buffer is the absolute minimum requirement. Planters or other more solid types of barriers are strongly preferred due to the added protection, aesthetic advantages, and reduced maintenance.

In addition, with a 2-way PBL I think it would make sense to disallow southbound left turns in the downtown section, except at the College St. and Bank St. intersections. This would include the

Congregational Church entrance, Buell St., the City Market entrance, the entrance to the Howard Center and the alley next to the Howard Center. At a minimum, left turns into the City Market entrance should be disallowed. See below for more discussion of the City Market entrance and exit, which I think needs to be addressed under any scenario.

Another option to consider would be to switch the 2-way PBL to the west side of the street, moving any on-street parking that remains to the east side. This would eliminate conflicts between the bike lane and the City Market entrance. It would also avoid the fire station and the intersection with Union St. I would also recommend eliminating northbound left turns under this scenario, except at intersections. However, doing this would put the bike lane in front of the vision-restricted parking garage exit, and would also create conflicts with several southbound bus stops (of which I believe there are more than there are northbound). It is not clear to me whether or not this approach has enough benefits to outweigh the disadvantages, but I think it is worth considering.

Loading and unloading activity should be banned from the 2-way bike lane, since there is no practical way for users of the lane to avoid the blockage.

Alternatives 1 and 2

I suggest combining Alternatives 1 and 2 to simplify presentation, since they are identical other than the treatment of the section between Main and Maple. I would also eliminate from consideration the option of widening the road between King and Maple, currently presented as a sub-alternative of A1. In my view the green space here is more valuable than either 2-way car traffic or the on-street parking.

The main options for enabling bike lanes in the section between Main and Maple are making it one way for motor vehicles (A2), or removing the on-street parking between King and Maple (A1). Both involve parking removal on one side between King and Main. Each of these options has its advantages, but on balance I believe that A2 (making this section one way for motorized traffic) is preferable to A1.

The main advantage of removing on-street parking would be the removal of the door zone on the uphill between King and Maple. It would also mean the southbound traffic would need to shift less to the left as it proceeds through the intersection with King St. (if parking is on the west side). However, making this section one way instead would allow for a protected bike lane between King and Main on the side opposite the parking, and a buffer for the lane adjacent to the parking. Having this section be one way would also significantly simplify the Main St. intersection, especially if it is signalized.

For both Alternatives 1 and 2, I suggest that on-street parking be removed on the west side of the road rather than on the east side, for the entire corridor. For the one-way segments of the road, this would place the northbound counter-flow bike lane adjacent to the on-street parking, rather than the southbound lane. This in turn would reduce dooring risks, both because fewer people exit vehicles on the passenger side, and because oncoming bicyclists will be more visible to the people opening doors. In addition, this will increase the safety of people existing the vehicle on the driver's side.

In the segment between North St. and Archibald, it seems to me that there are more businesses on the east side and thus that having on-street parking on that side would reduce the number of pedestrians attempting to cross the street to their destination.

In the section between Decatur/Union and Pearl there is room for a protected bike lane on the side opposite to the on-street parking. Having parking on the east side would allow for a southbound

protected bike lane to complement the northbound PBL on Union St. This makes more sense than to have another northbound protected lane.

Between Main St. and King St., there is also room for a protected bike lane on the side opposite to the on-street parking under A2. For consistency with the other recommendations it would make sense to have on-street parking on the east side, and a southbound protected bike lane on the west side.

In the section between Maple St. and Howard St., moving on-street parking to the east side has the additional advantage of moving the northbound bike lane away from some sections between Howard St. and Spruce St. where ice from hill runoff accumulates during the winter.

Alternative 4

I do not support Alternative 4 as currently planned because it relies on widening the road and removing a significant amount of greenspace. I believe this alternative should be rejected as undesirable and too expensive. At the meeting, another option was suggested of restoring 2-way motor vehicle traffic with a southbound bike lane and sharrows on the northbound traffic lane. I do not support this option either.

The main advantage for allowing 2-way motor vehicle traffic in the section between Pearl and Union, from my perspective, is to allow the bus to use Winooski Ave. instead of Union St., and perhaps to reduce other traffic on Union St. as well. Two-way traffic might slow southbound vehicles somewhat also. But I do not see much advantage to general motorized traffic flow in enabling two-way traffic here; it is not difficult for motor vehicles to use Union St. as they have for years. And making it easier for motorized traffic to get around town is not a goal I support in and of itself.

On the other hand, requiring bicyclists to either ride in traffic or to detour onto Union St. would perpetuate a strong disincentive to bicycle use in this area. One result of this would be that many cyclists would continue to ride the wrong way in the southbound bike lane, which is not safe. It is also counter to the goals of this project and of PlanBTV Walk-Bike.

In addition, with removal of parking on one side and maintaining a single southbound motorized traffic lane, there would be room for a protected bike lane here on the side opposite to the on-street parking. This is of a course a critical component of Alternative 3.

On balance, I believe that having bike lanes in both directions here (with a protected lane in at least one direction) is more important than having two-way motorized traffic.

Roundabouts

I mostly support roundabouts in theory, but in general good roundabout design requires space that is in short supply here. In addition to the normal concerns of ensuring pedestrian safety and traffic flow, any consideration of roundabouts needs to look at how bikes can be safely accommodated on a street that gets a lot of bike traffic and is expected to get more when other improvements are made.

Any roundabout being considered for this corridor should have splitter islands, both to slow and direct traffic, and also to provide a mid-crossing landing place for pedestrians and cyclists.

On any street that includes bike lanes, and that has significant traffic, there must be an option for bikes to avoid riding in the motor vehicle lane when coming to the roundabout. My non-expert understanding of roundabout design for bikes is that in general the most workable options for streets with bike lanes are these:

- A) bikes are given the choice of riding with traffic or joining the pedestrian traffic, which in theory means dismounting.
- B) same as A except that the bikes have their own space and crossing adjacent to the pedestrians; in this case dismounting should not be expected when crossing the roadway.
- C) same as B except bikes are not allowed in the roundabout itself, usually with more separation of bikes and peds.

Based on my limited research, I believe that designs in which there is a separate bike lane in the roundabout itself are not safe and should be avoided. All of the roundabout designs that I've seen that appear to handle bikes well (options B or C) seem to have a lot more room than we have at any of these intersections.

In general, I would support installation of roundabouts at any intersections that have enough room for bikes and pedestrians to coexist without requiring cyclists to dismount (options B or C), as long as they also meet requirements for improving pedestrian safety and can handle the traffic flow. I am willing to consider option A above only if it is limited to a very small number of intersections and only if it seems likely to have a significant advantage for managing traffic and improving pedestrian safety. Too many of those would disrupt biking flow too much (for people who don't want to ride in traffic) and discourage biking by all except confident riders.

It does not look to me as though the proposed super-mini roundabouts at Cherry, Bank, and College can accommodate anything other than option A above. Using such a design for several intersections in a row would discourage biking by anyone unwilling to ride in traffic. This would pretty much negate the value of adding bike lanes, and I do not support it. On the other hand, if they can accommodate a separate crossing for bikes (option B or C above), and also have splitter islands to shorten crossing distances, I would be strongly supportive of mini roundabouts for these intersections. See below for more discussion of this.

I also am not sure that roundabouts will work with Alternative 3 on this street. A 2-way protected bike lane can only work with roundabouts using option C above, so it will only work for intersections for which there is enough room for that. Although if there is room, that seems like a good option.

I have some concerns about whether a roundabout at Main St. would be able to accommodate the volume of pedestrian crossings during peak times, as well as the traffic backups on Main St. itself. But I assume that is something the engineers will be looking at anyway.

Any roundabout design following options A or B above must have an easily visible and intuitive ramp near the intersection to allow bikes to leave the roadway if they do not want to ride in traffic through the intersection.

To the extent that roundabouts are being proposed for this project, I highly recommend you present some strongly convincing supporting materials that demonstrate their advantages for both pedestrian safety and traffic flow. In particular, it would help with acceptance if you can provide evidence showing 1) that even kids can navigate roundabouts safely, and 2) that it is not hard to actually use a roundabout as a driver. Many people are most familiar with bad examples of roundabouts and therefore have bad impressions of them that need to be overcome.

Signalized Intersections

All signalized intersections should have an exclusive bike and pedestrian crossing signal phase, allowing bikes and pedestrians to cross while motorized vehicle traffic is stopped in all directions.

For major intersections, a separate bike signal light should be used to indicate when bikes may cross. When the motor vehicle traffic has a green light, the bike signal should convert to a blinking yellow light, indicating that bike traffic may continue with caution.

For smaller intersections, it may be sufficient to simply have a sign indicating that bikes may cross on the pedestrian signal.

An exclusive bike signal phase is most critical with A3 but is important in the other alternatives as well.

Right turns on red should be disallowed at all signalized intersections, either at all times or during the bike/ped crossing phase (using signs that light up, such as the ones currently at College and Main). At any intersection that does not have a lighted sign, there should be a permanent No Right Turn on Red sign. All such signs (lighted or not) should be in a prominent location clearly visible to all users. This applies to both directions of traffic, even under A3, to protect pedestrian crossings.

Commercial Driveways and Intersections

All streets and commercial entrances and exits that cross a bikeway under any of the alternatives should be clearly marked with green paint and warning signs, and with tightened turning radii to reduce turning speeds. Every effort should be made also to reduce the length of curb cuts, thereby reducing the distance over which pedestrians and cyclists are in danger of crossing traffic.

The most dangerous commercial entrance/exit on this corridor is the City Market entrance, due to the high volume of traffic in both directions, the wideness of the entrance, and the traffic backups that can happen both entering and exiting. I believe that traffic into and out of this driveway needs to be restricted under any scenario. This would be true even if we were not making any other changes to Winooski Ave., and will be especially true when we add bike lanes.

Here are a few options that I think should be considered:

- Eliminate southbound left turns into the entrance. This is essential under A3 and would help quite a bit under other scenarios. This would eliminate conflicts with northbound traffic wishing to turn left onto Bank St., and reduce conflicts with both pedestrians and bicycles on the east side. Although this would be inconvenient for traffic coming from the north, they would have the option of either turning onto College and entering via Union St., or finding a way to approach from the south. Adding an entrance via Orchard Terrace would help alleviate this inconvenience.
- Eliminate both southbound left entering turns and left exiting turns. In addition to the advantages above, this would allow narrowing the entrance and would simplify/reduce traffic crossing the sidewalk and bike lanes even more. This would add inconvenience for shoppers wishing to travel south, which is not easily addressed by the addition of an Orchard St. entrance/exit.
- Make the driveway exit only, forcing entrance from Union St. or from a newly opened entrance accessed via Orchard Terrace. It would probably also make sense to disallow exiting via those other entrances so that flow through the parking lot would be one way. This would allow

narrowing the Winooski Ave.driveway exit and would significantly simplify movement there and throughout the parking lot. On the other hand, it would force a lot more traffic onto Union St, including truck deliveries. It's possible that an early-morning exception could be made for truck deliveries entering from Winooski Ave.

The parking garage exit between Cherry and Bank St. is another significant safety concern for pedestrians and bicyclists due to poor visibility. I do not have any great ideas here other than removing the wall that blocks the view of southbound traffic. Please consider that possibility and also try to identify any other ways to improve the safety of this exit.

Riverside to Decatur/Union

I strongly feel that it is very important to get bike lanes in both directions in this section, and that we should not consider any additional alternatives for this section that do not include them. This road is too busy for sharrows. Also, the amount of traffic encourages people to ride too close to the parked cars, putting them in the door zone. See my discussion above of the importance of finding alternatives to on-street parking.

Downtown (Pearl to Main)

This is the most critical section of Winooski Ave. for improvement. Adding bike lanes and improving pedestrian safety and quality of experience here are essential to making our city more pedestrian- and bicycle-friendly. Making the bike lanes protected and separated from the motorized traffic here should be a priority.

If there is enough room for roundabouts at every intersection downtown, with bike crossings separated from pedestrian traffic (options B or C above), then I would recommend simplifying the design of the road between Main and Pearl to eliminate the middle turning lane and disallow all mid-block left turns. Traffic that wishes to access mid-block entrances and cross-streets would have to make a full 180° turn at the next roundabout and then take a right turn into their destination from the other side of the road. This would allow space for protected bike lanes on both sides of the road (or the 2-way PBL).

With a single central turning lane, there would be a significant conflict between southbound traffic wishing to turn left into City Market, and northbound traffic wishing to turn left onto Bank St. I do not think that the option identified in the plans for "20' long left turn lane into Bank Street and City Market" will work because of the large numbers of motor vehicles attempting to make turns here. Unless a roundabout can be used at Bank St I believe that one of those two left turns must be eliminated. See above for comments on the City Market entrance. I would also support the elimination of northbound left turns onto Bank St. Drivers wishing to access the parking garage from the south could use College and Center Streets to get to the Bank St. entrance, or enter from Cherry St.

Other considerations

Please ensure that any plans include additional improvements to the streetscape, including pedestrian amenities (benches, etc.), trees and other greenscaping, art, pedestrian buffers, and stormwater treatment.