From: Maureen Rickman
To: All Alders
Subject: Safety on LMD
Date: Monday, May 23, 2022 8:06:50 AM
Attachments: Assess Safety Risk 5-24.pdf
ATT00001.htm
Safety for JWolfe PDF.pdf
ATT00002.htm
On-road Mid-block Risk.xlsx
ATT00003.htm

Hello,

Thank you for your service to the Madison community. A couple weeks ago, I sent information about safety concerns introduced by the Lake Mendota Drive update. LMD has a perfect safety record - NO PEDESTRIAN ACCIDENTS in >20 years. I am concerned that the current plan might break that. Since then, I have been working with City Engineering to understand my concerns. The team has been very helpful and forthcoming. Jim Wolfe specifically asked that I break down my assertions into local street risk.

My response to him is included. I don't have access to the database that would allow me to answer it in detail. (Only governments do.) And my best guess still supports the main concern: the risk of a pedestrian accident from walking on the road is lower by quite a bit (at least half or more) than the risk of a mid-block accident from stepping into the street without being seen.

Sidewalks don't help because they sideline pedestrians further out of view the closer the driver gets. The data on the safety of sidewalks is mixed because it includes road types from interstates down to local one-way streets.

The City Engineers are very comfortable bringing forward the compromises that would be needed if we truly agreed to optimize safety. More parking signs might be needed. More pavement might be required. Keeping the street just as it is doesn't meet the City's over-arching goals of sidewalks on both sides. I get that. When the overall safety risk is low, and it is for both of these types of accidents, other concerns can be brought forward.

And yet, there is a safer solution that seems to address all those concerns. I've diagrammed it. It also saves more trees, can be implemented with equity-improving textured pavement, reduces excavation and allows the City to optimize stormwater management in green ways (i.e. more plantings).

Would that solution fit everywhere on LMD? No. Sidewalks belong some places and actually need to be wider to increase equity in the central area. But would the City arrive at that greener safer solution in many areas on LMD? I believe it would.

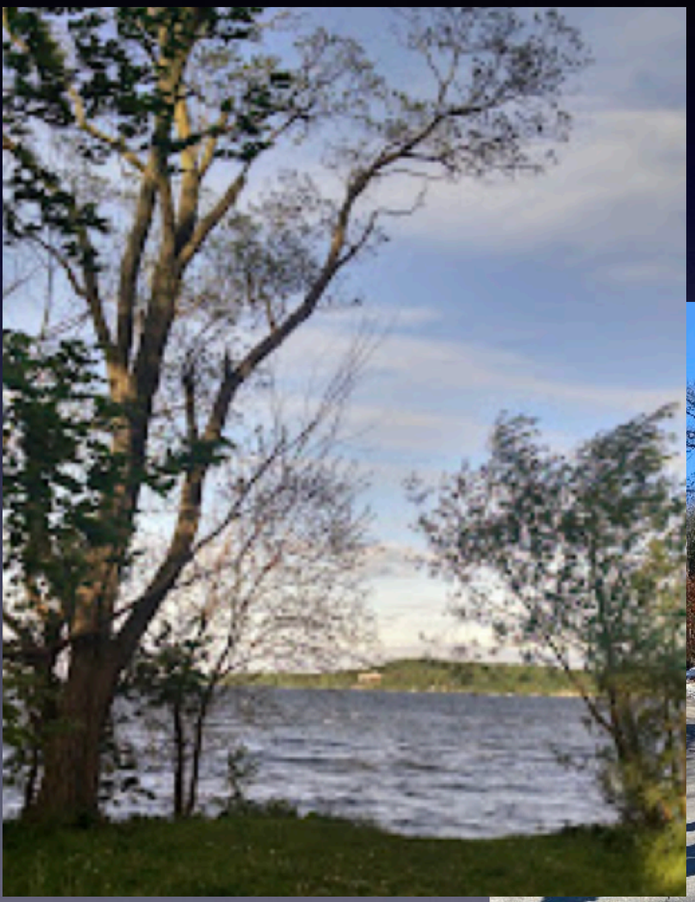
The consequences of this decision will echo for decades. Please consider slowing down this project.

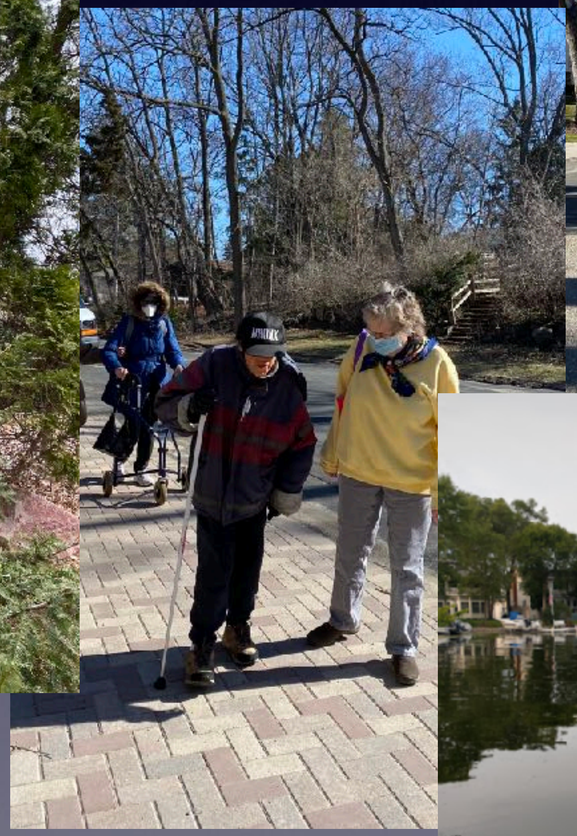
Thank you sincerely,
Maureen Rickman

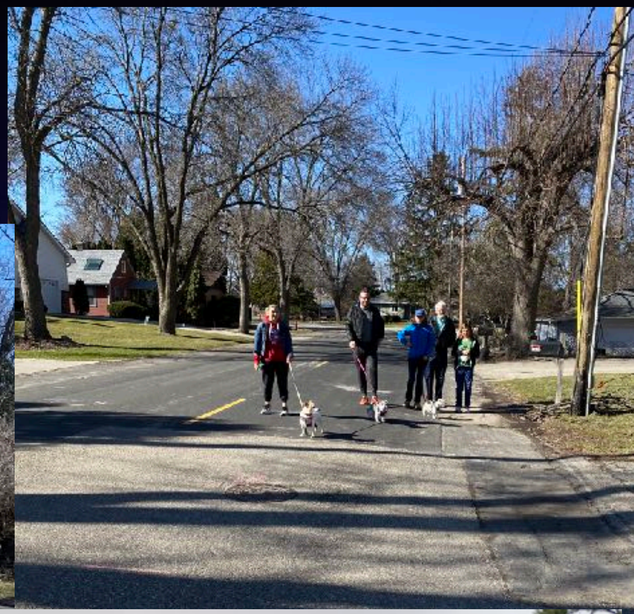
Lake Mendota Drive:
NO Pedestrian Accidents

- in 2011-2015 (Dane Cty Study)
- in 20 years (State Study)
- in 70 years (Long-time residents)

How can that be? People drive here to go for a walk.







Does the Update Increase Risk?

- Mid-block dart-out risk seems higher than on-road walking: more analysis needed
- Sidewalks presumed safe but reduce visibility of mid-block crossing: more analysis needed
- Excavation destroys trees: more can be saved

STOP and Make a Better Plan

Seeing and Being Seen* Makes All the Difference

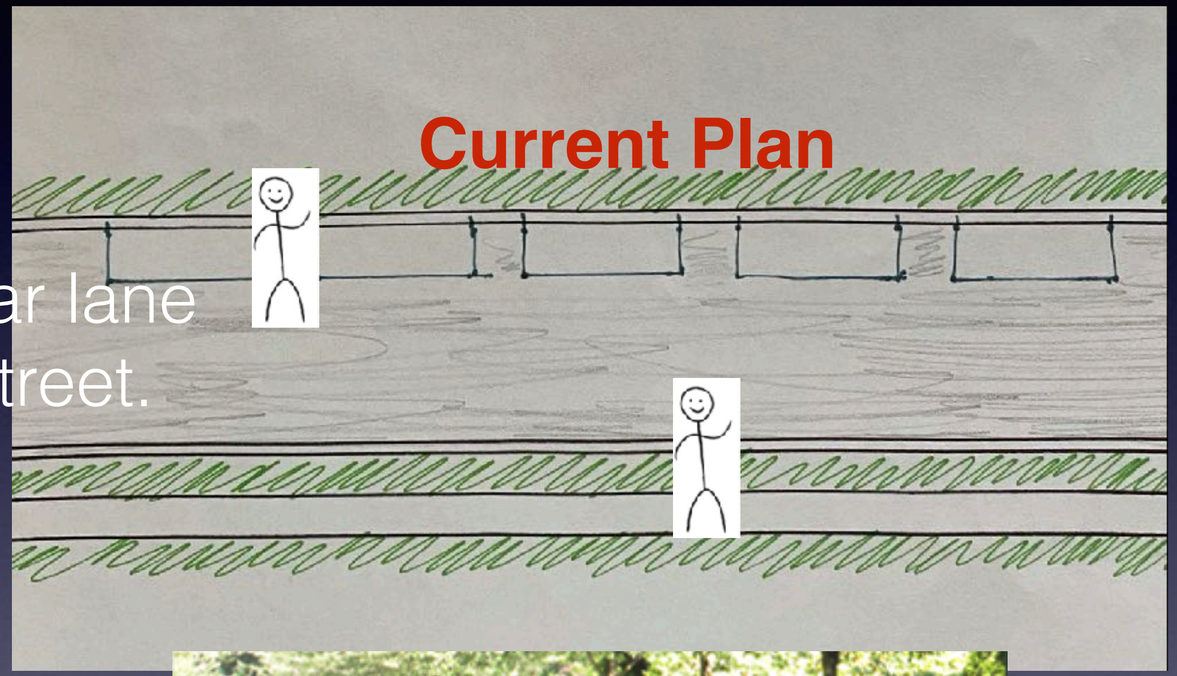
Drivers slow down when they see pedestrians

Pedestrians behave more safely around other pedestrians

Slow speeds (<22 MPH) and spaced parking

**'Safety in Numbers' street design described in AASHTO Updated Guide*

Will One-side Parking Increase Mid-block Crossing Accidents*?



Step into the car lane to cross the street.

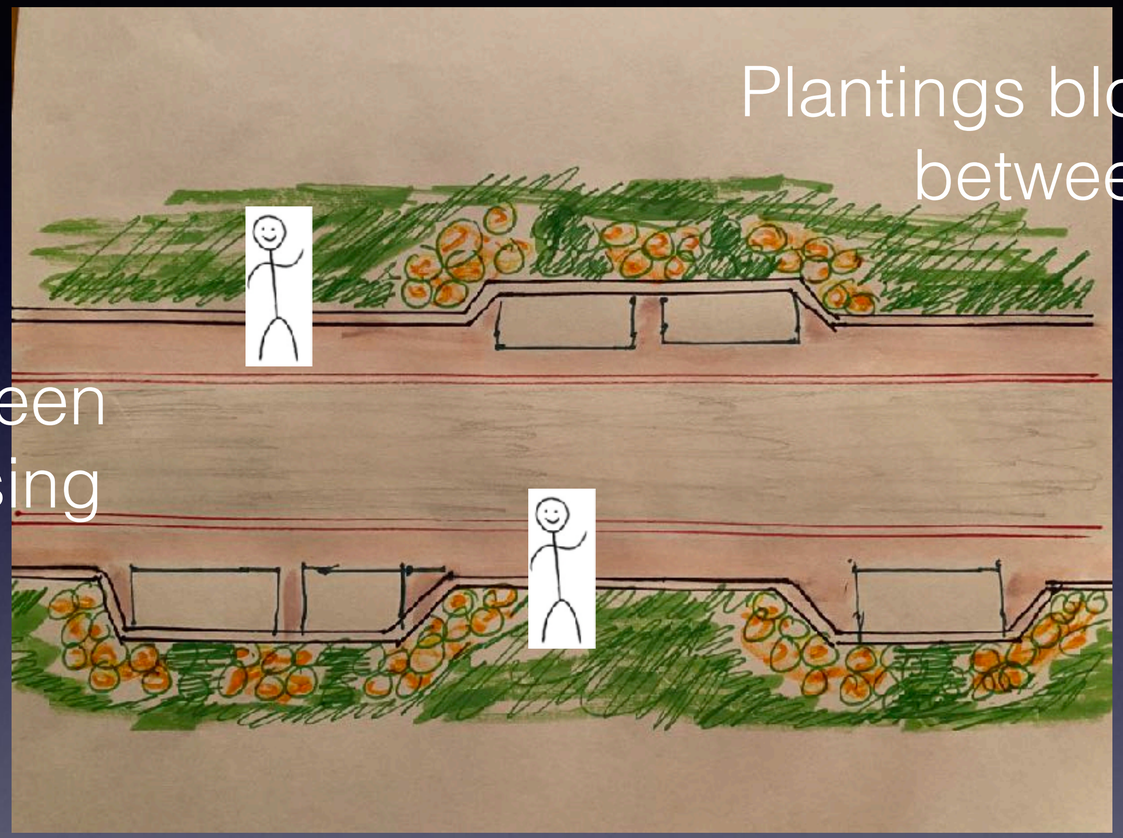
Gutter makes car lane seem wider and faster.

** Over-represented in children*
** 14% National Study*
** 7% Dane Cty 2011-2015*

Is walking on the road safer?

Plantings block walkouts between cars

Pedestrian Seen Before Crossing



Perceived car lane narrowed by pedestrian safety zone

**6% National Study*
**2% Dane Cty 2011-'15*

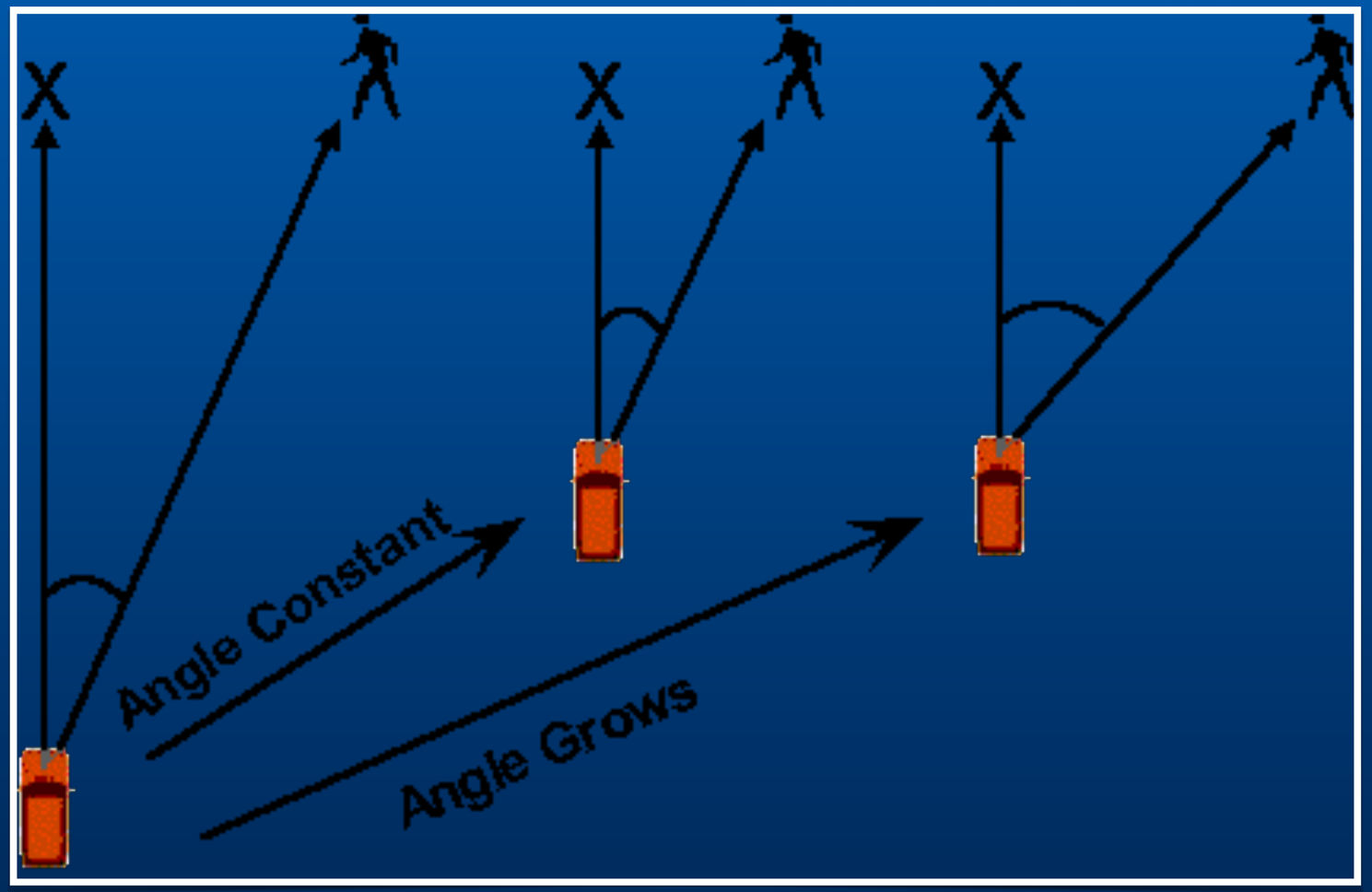
Sidewalk Safety is Unclear

CAUTION: Combining Road Types, ~80% pedestrian accidents occur on roads without sidewalks

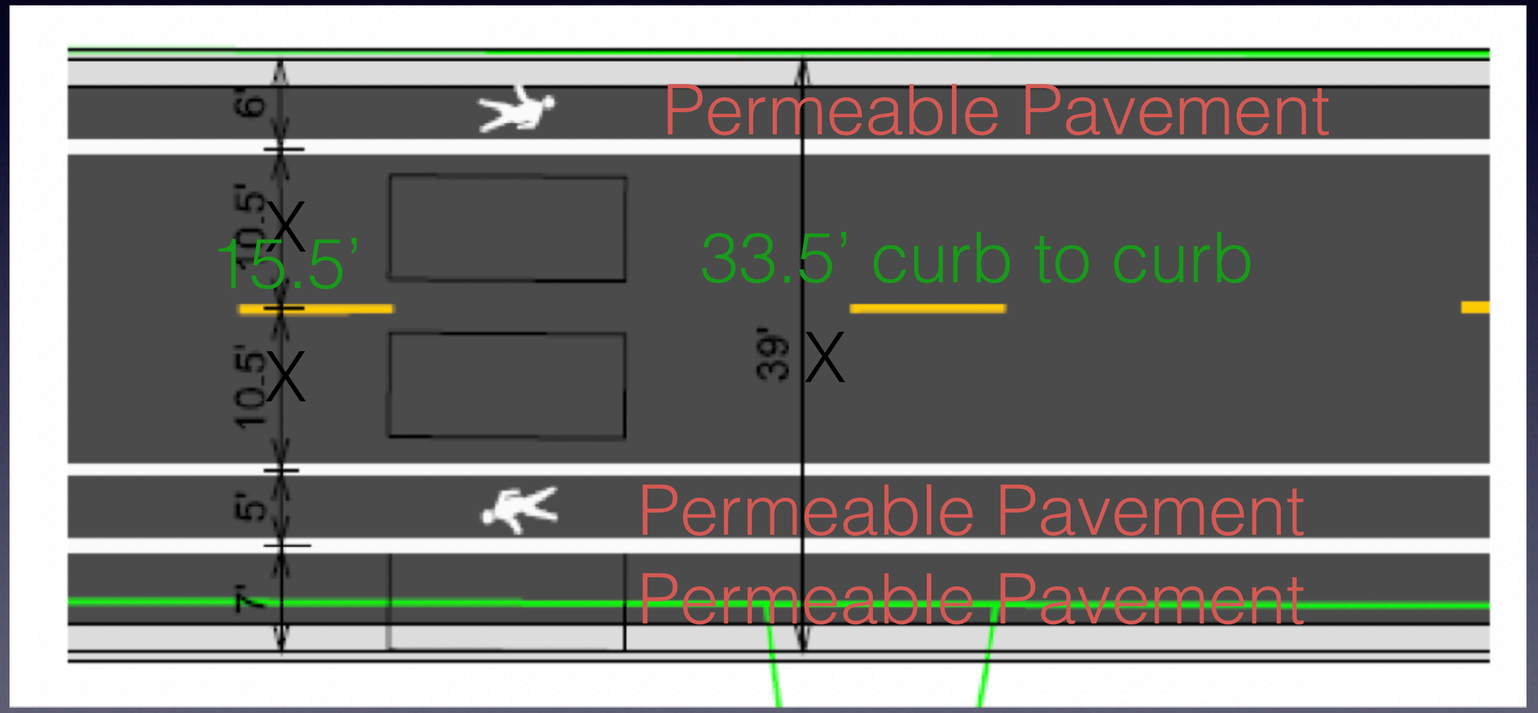
WHY UNCLEAR?: Traffic calming increases walking and reduces injury. Sidewalks related to increased walking and to increased injuries. *American Academic Pediatrics*

Would Sidewalks Increase Mid-block Crossing Accidents?

- The closer a driver gets, the less activity seen on the sidewalk
- Sidelining pedestrians out of view reduces driver vigilance



How much Pavement?



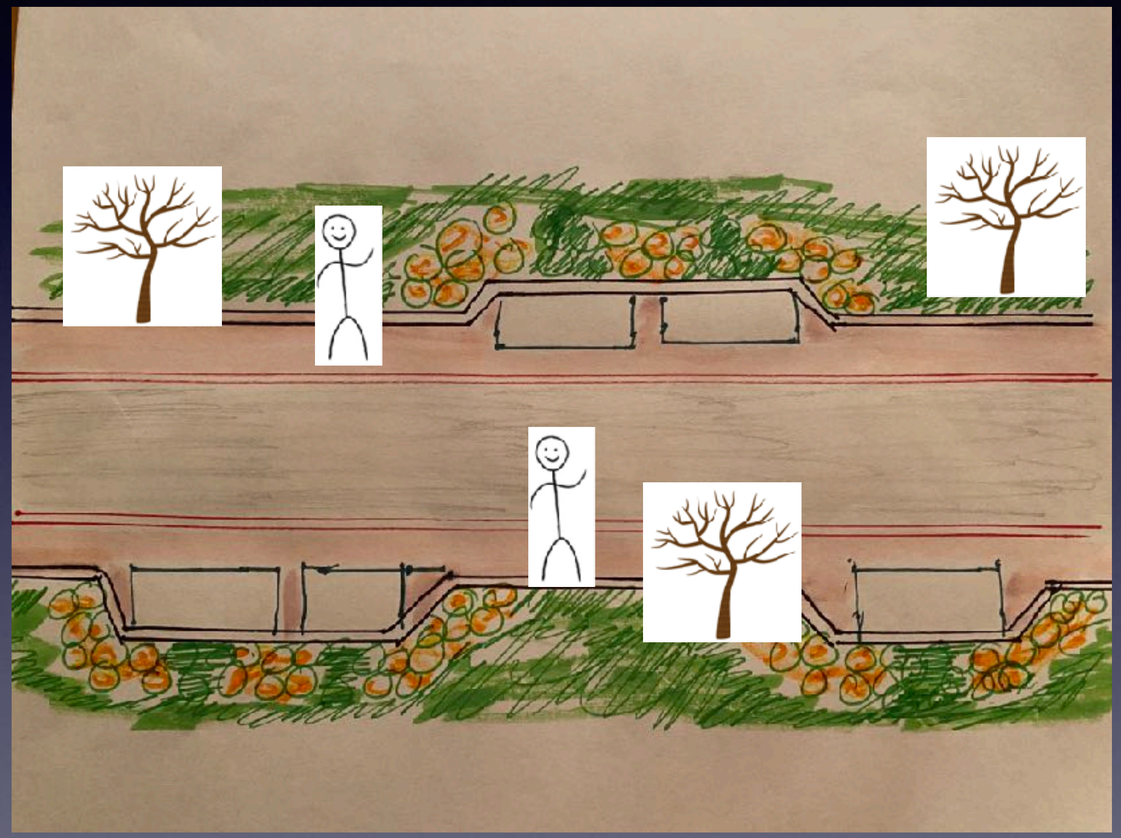
Street Width 34.5’
Impervious Pavement 18.5’

- 2’ curb/gutter
- 4.5’ path w/o parking
- 15.5’ driving lane*
- 5’ path w/ parking
- 5.5’ parking
- 2’ curb/gutter

**Laurel Crest to Baker Ave and Capital Ave to 5642 LMD*

Parking Pockets Reduce Excavation and Make Room for Trees

Curb: 1’
Gutter: 3’
Car lane pavement: 15.5’
Walkway Pavement: 10’
Parking Pavement:<1/2 of 5.5’
Total Pavement: <32.25’
Max Excavation: <32.25’



Parking is intuitive.
No signs needed.

Approval Happened Too Quickly

- LMD has a perfect safety record - Pedestrian visibility is key
- Mid-block dart-out risk seems higher than on-road walking: more analysis needed
- Sidewalks presumed safe but reduce visibility of mid-block crossing: more analysis needed
- Excavation destroys trees: more can be saved

STOP and Make a Better Plan


Lake Mendota Drive
Madison’s First Park and Pleasure Drive
c.1892
Madison’s First Complete Green Street
c. 2024
Be a friend to water.
- Mąąką’ Mąą’í

Hello, Jim -

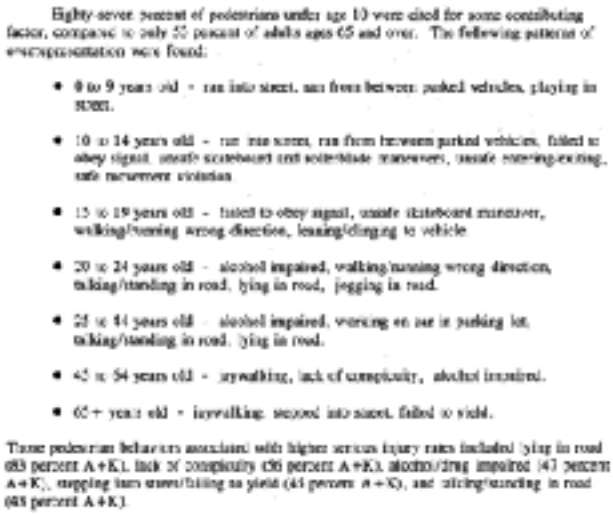
On-road and dart/dash/step-into-road accidents

I was able to look into your question about comparing the global Dane Cty Crash data about walking along the roadway versus mid-block accidents. The national data I cited came from the information included in the Update of the AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities | National Operations Center of Excellence (transportationops.org) Jan 2011:

Hunter, W.W., J.C. Stutts, W.E. Pein, and C.L. Cox. Pedestrian and Bicycle Crash Types of the Early 1990s, US Department of Transportation, Federal Highway Administration, FHWA-RD-95-163, June 1996

The global summary of pedestrian contributions to accidents highlighted the risk of walkouts among children.

I put together a spreadsheet from Tables 10, 11, 23, 26 to try to understand it. The core variables associated with on-road activity accounted for 6% of total accidents ('walking in the road', 'standing in the road', 'playing in the road', 'play vehicle' in the road'). Those related to mid-block accidents were 14% ('Work/play in road', Midblock:Other').



Eighty-seven percent of pedestrians under age 10 were cited for some contributing factor, compared to only 52 percent of adults ages 65 and over. The following patterns of overrepresentation were found:

- 0 to 9 years old - ran into street, ran from between parked vehicles, playing in street.
- 10 to 14 years old - ran into street, ran from between parked vehicles, failed to obey signal, unsafe skateboard and rollerblade maneuvers, unsafe entering-exiting, safe maneuvers violation.
- 15 to 19 years old - failed to obey signal, unsafe skateboard maneuver, walking/running wrong direction, leaning/clinging to vehicle.
- 20 to 24 years old - alcohol impaired, walking/running wrong direction, walking/standing in road, lying in road, jogging in road.
- 25 to 44 years old - alcohol impaired, working on car in parking lot, walking/standing in road, lying in road.
- 45 to 54 years old - jaywalking, lack of complicity, alcohol involved.
- 65+ years old - jaywalking, stepped into street, failed to yield.

These pedestrian behaviors associated with higher serious injury rates included: lying in road (83 percent A+K), lack of complicity (56 percent A+K), alcohol/drug impaired (47 percent A+K), stepping into street/failing to yield (45 percent A+K), and walking/standing in road (45 percent A+K).

Unfortunately, they didn't break down the individual variables by street type clustering the variables of interest under "Mid-block Other". There is a database that allows this to be pulled out, but I didn't have access to it. I did make an estimate based on the fraction of the targeted variable within the street type, and still came up with estimates that predict lower incidence of accidents from on-road activity (77-103) than from darting, dashing or stepping into the road (241-249).

I did this in an effort to convince myself that the data isn't as lopsided as it seems. I've included the spreadsheet if you want to take a look (On-road Midblock Risk). My takeaway is that Lake Mendota Drive has always had a risk of accidents due to on-road

activity. And that risk is lowered by the culture of caution and cooperation created by everyone using the street: pedestrians and drivers behave better when they see pedestrians. Long views and narrow perceived lanes helps even more.

The dash/dart/step-out risk is higher overall, and LMD doesn't have much. I am concerned that one-side parking, even if usually only 20% occupied will increase between-car walkouts. Remember - we're comparing the increased risk to more than 20 years with no accidents.

Sidewalks

Sidewalks are presumed to increase safety because such a large number of overall accidents happen on streets that don't have them (83%). What I can't find, is how that breaks down differently from interstates to local streets. I looked at two literature reviews that say its complicated. But they didn't provide a breakdown that would help understand the risk of sidelining pedestrians out-of-view on a local street like ours. The data does point out that schools areas do better with sidewalks, but seems to suggest they aren't helpful in other areas.

Objective and Perceived Traffic Safety for Children: A Systematic Literature Review of Traffic and Built Environment Characteristics Related to Safe Travel
by Yasser Amiour 1,*, E. O. D. Waygood 1 and Pauline E. W. van den Berg 2
Int. J. Environ. Res. Public Health 2022, *19*(5), 2641
https://doi.org/10.3390/ijerph19052641

*Sidewalks are designated places to walk, though their relationship with safety is not always clear. The previous study on child pedestrians [**19**] found that they were associated with an increase in injury, though those authors point out that there may be more child pedestrians along such routes. In this review, sidewalks were related to fewer crashes involving children compared to roads without sidewalks around the school [**40**]. Streets with a high proportion of missing sidewalks were found to increase the probability of school-aged child pedestrian crashes [**38**]. Sidewalks and bike lanes are designated active travel infrastructure. However, in studies [**36**,**40**,**43**], sidewalks and bike lanes were not statistically significantly related to injuries among children. Crosswalk density could increase the probability of child pedestrian crashes near schools [**38**], though it was not correlated with injuries among children around neighborhood environment [**39**]. Infrastructure with pedestrian bridges was related to fewer collisions [**39**], though they can be significant barriers to people with mobility problems such as parents with strollers and people with physical disabilities.*

https://publications.aap.org/aapgrandrounds/article-abstract/31/6/65/90867/Environmental-Correlates-of-Safe-Walking?redirectedFrom=fulltext
American Academy of Pediatrics
The only specific features that correlated consistently with both increased walking and decreased injury risk were traffic calming design features (such as speed bumps and roundabouts) and the presence of parks and playgrounds. Some features of the built environment, such as crosswalks and sidewalks, and the proximity of services and facilities, were correlated with increased walking but also with increased injury risk.

Options

And, lastly, I know that you balance multiple factors in your head at once when making design choices As citizens, we have had a mix of concerns that we brought to you. And felt good when we got things we wanted (e.g. space for rain gardens, thank you). And not so good about other things (e.g. insufficient green water management). Overall, however, the process has created a complain-and-compromise dynamic. It doesn't have to be that way. When I imagine applying the CGS hierarchies to LMD, the west end has a mix of on-road walkways and sidewalks, the middle sections needs wider more equitable recreation-width sidewalks, and the east end has all on-road walkways with pocket parking. (That would also make room for honoring Native American Heritage which is what got me into this whole thing in the first place.)

It feels like what happened is that the most straightforward option of paving a 28' road to upgrade what it already looks like was immediately dismissed. The one-side parking with one-side parking on a 24' street is a proposed compromise that costs 29' of pavement (including sidewalks) and 34' of excavation. On-road walkways on a 24' street cost 34.5' total excavation. That would also cost more pavement. But what if the parking was in two-space butt-outs? Then the total pavement drops to less than 32.5'(half the parking pavement is gone). Make it permeable pavement and both equity and the environment benefit.

I know that there is some chance that the perfect safety record on LMD is just dang lucky. That is not an evidence-based assertion, however. I do believe that LMD may have serendipitously fostered a culture of caution and cooperation. And, that by attending to what got us here, we can recreate it by design.

Thank you sincerely,
Maureen Rickman

Two-thirds of pedestrians (66 percent) were coded for at least one contributing factor. The most frequently coded pedestrian factors were:

- Ran into road 15.0 percent
- Failed to yield 11.8 percent
- Alcohol impaired 10.3 percent
- Stepped from between parked vehicles 7.1 percent
- Walk/run wrong direction 5.3 percent

Several of these pedestrian behaviors are associated with specific crash types, such as intersection or midblock dashes and walking along the road with traffic. Other contributing factors that were noted with some frequency include jaywalking (3.1 percent), stepping into the roadway (4.1 percent), failing to obey a traffic signal (3.0 percent), talking or standing in the road (3.1 percent), and lack of conspicuity (2.9 percent). Since conspicuity was only coded if the reporting officer made some documentation of the pedestrian not being visible to the motor vehicle driver (e.g., "pedestrian was wearing dark clothing" or "driver couldn't see the pedestrian standing at the edge of the roadway"), it is likely a conservative estimate of the problem, as is likely true for many of these contributing factors. Pedestrian actions that were only rarely cited as contributing factors included jogging in the road (15 cases), unsafe skateboard maneuver (13 cases), and unsafe rollerblade maneuver (6 cases). Without exposure data, however, the level of risk associated with such behaviors cannot be assessed.

Crash Type	Table 11 Number	Total %	<25 MPH within type	<25 MPH Number	<25 MPH % Total	Local Street % by type	Local Street Number	Local Street % Total	LMD-like Range of Risk
Bus	44		24%	11	1%	37%	16	1%	
Work/play in Road	152		50.0%	76	6%	33%	50	3%	
420-Play vehicle in road	35			*18*			*12*		
430-Playing in road	48			*6*			*16*		
Midblk: Other	667		22%	147		31%	207		
894-walking in road	197			*43*			*61*		
891-stand in road	47			*10*			*14*		
Total On-road risk	327	6%		77			103		Est 77-103
Mid-block: Dart/Dash	674		35%	236	17%	33%	222	15%	222-236
Midblk: Other	667		22%	147	11%	31%	207	14%	
892-Intantaneous Step into Road	*60*			*13*			*19*		
Total Dart/Dash/Step	734	14%		249.1066			241.42		Est 241-249
Backing	351		50.0%	176		29%	102		102-176
Intersections:									
Intersection: Vehicle Turning	497		21%	104	8%	28%	139	9%	
Intersection: Dash Out	363		24%	87	6%	38%	138	9%	
Intersection: Other	511		24%	123	9%	27%	138	9%	
Intersection: Driver Violation	259		32%	83	6%	38%	98	7%	
Other Intersection Types	1666		-	-		-	-		
TOTAL Crashes	5,073		27%	1370		29%	1471		
Table 10 Mid-block Analysis									
Midblk: Other (not inc)	667		22%	147		31%	207		
894-walking in road	*197*								
%894/Midblck	0.29535			43			61		
891-stand in road	*47*								
%891/Midblck	0.07046			10			14		
892-Instantaneous Step in Road	60								
892/Midblk Other	0.08996			13			19		
Work/play in Road	152		50.0%	76		33%	50		
420-Play vehicle	35								
%420/Wrk-Play	0.23026			18			12		
430-Playing in road	48								
%430/Wrk-Play	0.31579			5.52631579			15.84		