



PALATINE/WILLOW ROAD CORRIDOR STUDY

Walking and Biking for Transportation

At the January 30 meeting we discussed a range of strategies for accommodating pedestrian and bicycle travel along and across Palatine Road between US 12 to IL 83. These strategies were taken from a technical report drafted by Chicago Area Transportation Study (CATS) staff, available for review at: www.catsmpo.com/bikeped/ah_technicalreport.pdf. This document reflects written comments provided at the end of the meeting. We received 13 sets of comments.

A. Design Safe Sidewalks and Parkways. Consider a continuous sidewalk, separated from traffic by a landscape parkway, on both sides of Palatine Road.

Suggested Strategies. Consider the following strategies:

- Add sidewalks to the plans on Schoenbeck Rd north of Palatine Road. As these would replace existing sidewalks, we understand IDOT will pay for this construction item.
Consider: 12 Don't Consider: 1 Not Sure:
Comments:
 - ⇒ *Absolutely, with recreational and school facilities—safety must be essential to all planning. Sidewalks with buffers should definitely be in the plan.*
 - ⇒ *We need 80% IDOT funding for sidewalks where they do not exist.*
 - ⇒ *What about south of Palatine by school?*
 - ⇒ *Sidewalks could have been added when Schoenbeck was widened. Need sidewalks on south as well.*
 - ⇒ *Also need sidewalks to the south. Put guard rails between road and sidewalk along Palatine Road.*
- Provide parkways where absent from the plans in the vicinity of Windsor Drive. Consider adopting 11' travel lanes in the vicinity of Windsor Drive to allow for an additional 2-3 feet for parkways on both sides of Palatine Road.¹ Another way to provide such a parkway would be to change the dual left turn lanes on Palatine Road at Windsor to a single left turn lane (see discussion in section B-1).

Consider: 10 Don't Consider: 2 Not Sure: 1

Comments:

- ⇒ *Maintain traffic capacity, do not reduce turn lanes or lane widths*
- ⇒ *Drop dual lane—need maximum buffer*
- ⇒ *Reconsider dual lefts to create narrowed cross section for shorter crossing time.*
- ⇒ *Make the intersection safer and give a wider “buffer” zone between roadway and pedestrians.*
- ⇒ *Consider in front of D23 campus at Schoenbeck also.*
- ⇒ *Maybe a good way to slow traffic.*
- ⇒ *Dual left lanes are required (especially at rush hours) 11' thru lanes ARE more dangerous at intersections than perceived “safety” to pedestrians.*
- ⇒ *We need more time during high use hours at these intersections, not less. Can the lights be timed to the district's advantage during our peak hours?*

¹ The AASHTO *Policy on Geometric Design of Highways and Streets* ("Green Book," 2001, p. 315) indicates "Although lane widths of 3.6 m (12 feet) are desirable on both rural and urban facilities, there are circumstances where lanes less than 3.6 m (12 feet) should be used. In urban areas where *pedestrian crossings*, right-of-way, or existing development become stringent controls, the use of 3.3 m (11 foot) lanes is acceptable" (emphasis added). The Transportation Research Board's *Highway Capacity Manual 2000* (p. 16-11)

gives the formula for lane width capacity adjustment of $f_w = 1 + \frac{(W - 12)}{30}$, where W is the lane width. Thus, a lane with an 11' width has 96.7% of the capacity of a 12' lane.

- Encourage the City of Prospect Heights, Prospect Heights Elementary School District 23, and the Illinois Department of Transportation to build sidewalks on the east side of Schoenbeck Road north and south of Palatine Road.

Consider: 11 Don't Consider: 1 (IDOT should do it) Not Sure: 1

Comments:

⇒ *yes*

⇒ *IDOT should fund sidewalks to encourage pedestrians to cross at intersections.*

⇒ *Neither the city nor the school district have funds to pay for sidewalks.*

⇒ *Neither city nor school district have funds for sidewalks. Funding/grant sources would have to be available.*

⇒ *Both east and west side. School district property is not friendly to pedestrians. Crowded during peak times.*

⇒ *It must be part of any safe access plan for the school and park programs.*

⇒ *School is on the west side.*

⇒ *I thought IDOT had set aside money for citizen safety and those funds dried up. What gives? What's important to IDOT?*

⇒ *IDOT should add sidewalk on both sides of Schoenbeck.*

- Establish, in cooperation with Prospect Heights Elementary School District 23, safe designated school walking and bicycling routes so that students from either side of Palatine Road may walk or bicycle to school. An example of such a plan (adapted from such a plan in Naperville, Illinois) is available in FHWA's *Manual of Uniform Traffic Control Devices - Part 7 Traffic Controls for School Areas*.

Consider: 11 Don't Consider: 1 Not Sure:

Comments:

⇒ *Only if city puts in sidewalks*

⇒ *Coordinate with busing plan north of Palatine Road.*

⇒ *If Prospect Heights could get funding for sidewalks.*

⇒ *School also needs to encourage and support—ie helmet storage, bike rodeo etc.*

⇒ *Need the sidewalks with proper funding.*

⇒ *No sidewalks in majority of Prospect Heights.*

B. Provide Safe Pedestrian Crossings. Consider providing safe pedestrian crossings at intersections and driveways. Consider children, the elderly, and the disabled.

B-1. Windsor Drive.

Suggested Strategies: Consider the following:

- Provide at least one median refuge for pedestrians crossing Palatine Road at Windsor Drive. This is desirable because of a minimal pedestrian clearance interval and the width of the crossing (100'). It is important to use the existing cross-section to add the median refuge, rather than adding to the cross-section, since many pedestrians will find the intersection too wide. As part of this strategy, *consider the following:*
(OVERALL) Consider: 8 Don't Consider: 2 Not Sure:
Comments:
 - ⇒ *Make sure signals are designed to allow crossing during one cycle.*
 - ⇒ *Gain refuge by eliminated dual left turn.*
 - ⇒ *Narrow cross section instead.*
 - ⇒ *Would need to be big enough for several bikes; I am envisioning a family biking trip.*
 - ⇒ *Alternately, go for longer lights for pedestrians, using the new light technology.*
 - ⇒ *Lengthen the GREEN time for walking across.*
 - ⇒ *Must be wide enough to provide a safe haven.*
- On the east leg, seriously consider replacing one east-leg dual left turn lane with a wider median to provide a substantial pedestrian refuge.² Capacity analyses show that the second left turn lane on the east leg does not improve the level of service. If the wider center refuge cannot be added to the interim construction plans for concrete work, then consider painting only one lane in, striping the second east leg left turn lane closed on an experimental basis.
Consider: 7 Don't Consider: 3 Not Sure: 2
Comments:
 - ⇒ *If additional left turn lane is NOT needed, then agree. Need proof.*
 - ⇒ *Eliminate dual left turn lane. Work with timing of left turn with trigger to accommodate demand.*
 - ⇒ *One left turn lane heading west*
 - ⇒ *Eliminating a second lane going south on Windsor is a possibility because Windsor is only one lane past the intersection, and it's also a very short road before the turn at Dryden.*
 - ⇒ *Will this cause the road to "fail" sooner and AH takes three through lanes all the way?*
- Provide pedestrian count-down signals. Since the pedestrian clearance time at Windsor may be insufficient for children and the elderly, consider pedestrian count-down signals at the intersection. Pedestrian count-down signals will inform slower walkers whether they should stop and take refuge in the median (when there is little time left) or proceed across the last 3-4 lanes of traffic (if they judge they can make it across).
Consider: 11 Don't Consider: 1 Not Sure: 2
Comments:
 - ⇒ *Great idea!*
 - ⇒ *Make clearance time longer.*
 - ⇒ *Why not make light long enough for a child to get across?*
 - ⇒ *Can't you put in a light that is long enough for a child to get across? Few people walk at 4 ft/second.*
 - ⇒ *Great idea, most pedestrian times are off peak times for cars.*
 - ⇒ *Everyone must know what they mean—will kids?*

² Space may also be reallocated to providing a wider parkway, as noted in Section A.

- Provide a pedestrian push-button in the median, so pedestrians taking refuge in the median can activate the pedestrian signal for the next signal cycle.

Consider: 9 Don't Consider: 2 Not Sure:

Comments:

⇒ *Do not encourage stopping in median*

⇒ *Push button on side of road—use a sensor to indicate if pedestrian is in crosswalk.*

⇒ *Why not make light long enough for a child to get across?*

⇒ *Passive protection of pedestrians—adjust green time.*

- Provide more visible pedestrian crossings. Consider the use of wider crosswalk markings or zebra crosswalk markings. Consider using 24” wide transverse crosswalk markings on each side of the crosswalk. Also consider diagonal or longitudinal lines 12” to 24” wide within the crosswalk. Community concern about this intersection would seem to show that visibility is desired.³

Consider: 13 Don't Consider: Not Sure:

Comments:

⇒ *Also consider brick stamping or be prepared to re-paint markings often.*

⇒ *Great idea—maybe let towns have their own crosswalk symbols (like the Hawaii example).*

Something to make it noticeable.

- Consider additional pedestrian clearance time crossing Palatine Road, possibly in conjunction with passive pedestrian detection equipment. Adding to the bare minimum pedestrian clearance time in the project report will allow additional time for seniors, children, and the disabled to cross Palatine Rd. Capacity analyses indicate this will be feasible in the ultimate design for the intersection while maintaining an acceptable level of service. A trade-off would be necessary in the interim design, but may be mitigated somewhat by providing additional clearance time only when passive pedestrian detection equipment determines the need for additional clearance time.⁴

Consider: 10 Don't Consider: Not Sure: 2

Comments:

⇒ *Yes*

⇒ *Again, most pedestrian traffic is off peak. Many children get a ride in the am, but travel home by themselves.*

⇒ *Minimums are just that. . . minimums. They don't cover all circumstances.*

³ See Section 3B.17 of FHWA's *Manual on Uniform Traffic Control Devices, Millenium Edition, Part 3 - Markings*.

⁴ See the second option discussed in Section 4E.09 of FHWA's *Manual on Uniform Traffic Control Devices, Millenium Edition, Part 4 - Highway Traffic Signals*.

B-2: Schoenbeck Rd.

Suggested Strategies: Consider the following for Palatine at Schoenbeck:

- Monitor signal timing to assure sufficient pedestrian signal and clearance time. The intersection design study shows that the provision of sufficient pedestrian signal time is possible at this intersection on the west, north, and south legs. Assurance that the pedestrian time is actually provided is critical at this location, which provides school and park access.

Consider: 13 Don't Consider: Not Sure:

Comments:

⇒ *With pedestrian actuated signal, can insure adequate clearance time when it is needed*

⇒ *Yes*

⇒ *Everything that can be done should be done to provide safe pedestrian crossing at this important intersection considering the schools, community events, park district and bike traffic.*

⇒ *Timing is critical for safe crossing of children.*

⇒ *Very important. Involvement by all parties in the development of this. Allow for adjustment for peak school periods.*

⇒ *The more we learn about the use of the road, the better.*

⇒ *Give more time during peak to accommodate school traffic.*

- Increase crosswalk visibility. A zebra crosswalk is proposed. Consider mechanisms to increase the visibility of the crosswalk. The Millennium Edition of the *Manual on Uniform Traffic Control Devices* offers a variety of special school area traffic signs and pavement markings, as follows:
 - Consider increasing visibility on Palatine Road by using special, large sign sizes for school areas as suggested in Table 7B-1 of the *MUTCD* for controlled access arterials in school areas.⁵⁶
 - Consider increasing visibility through the use of fluorescent yellow green signs for all school and crosswalk advance warning, school speed limit and crossing sign assemblies in the school area.⁷
 - Consider the use of flashing beacons and/or changeable message signs to inform drivers of the school area and/or any applicable school speed zones when school is in session.
 - Consider "SCHOOL" pavement markings. Options are available for one- and two-lane markings. Minimum heights for such markings are 6' and 10', respectively.⁸

Consider: 13 Don't Consider: Not Sure:

Comments:

⇒ *Drivers need frequent reminders of school proximity.*

⇒ *Flashing light prior to intersection (at least)*

⇒ *Issue with [can't read] by IDOT. I recall they said no requirement for these special lights.*

⁵ Controlled access arterials such as Palatine Road east of Schoenbeck are referred to as "expressways" in engineering and transportation planning usage outside of northeastern Illinois. The Chicago area's "expressways" are really "freeways."

⁶ See the standard in Section 7B.01 of FHWA's *Manual on Uniform Traffic Control Devices, Millenium Edition, Part 7 - Traffic Controls for School Areas*.

⁷ See section 7B.07, op cit.

⁸ See Section 7C.06, op cit.

- Provide a modestly wider median refuge for pedestrians crossing Palatine Road at Schoenbeck Road. Some pedestrians will undoubtedly stop at the median, given the 100' crossing length. Plan for this by providing a minimum 6' median at this location. As part of this strategy, *consider the following features:*
 - On the west leg, consider using 11-11.5' lanes to provide a wider center refuge for pedestrians, or reducing the 2' striped section between east-bound through traffic and left turning vehicles.
 - Provide pedestrian count-down signals. Since this intersection is wide and will see children crossing the road, consider pedestrian count-down signals. Pedestrian count-down signals will inform slower walkers whether they should stop and take refuge in the median (when there is little time left) or proceed across the last 3-4 lanes of traffic (if they judge they can make it across).
 - Provide a pedestrian push-button in the median, so pedestrians taking refuge in the median can activate the pedestrian signal for the next signal cycle.

Consider: 7 Don't Consider: 3 Not Sure:

Comments:

⇒ *No!*

⇒ *OK, if width isn't decreased from removal of dual left turn lanes.*

⇒ *6' too narrow; strive for narrow total cross section.*

⇒ *Make sure the median has some protection against any traffic impact.*

⇒ *Stopping in the median of Palatine is dangerous*

⇒ *[ed. note--two people specifically indicated support for count down signal; one person specifically indicated support for ped push button median]*

- Provide focused education and enforcement of the rules of the road by municipal information and police department efforts. Many drivers are not aware of pedestrian right of way and school area regulations. Municipal information and police assistance may be beneficial.

Consider: 8 Don't Consider: 2 Not Sure: 1

Comments:

⇒ *It is not the police department's job to make this intersection safe.*

⇒ *The depts and schools already provide education. IDOT should not throw responsibility for pedestrian safety to local depts. The design should be made to promote safety—children first.*

⇒ *Great idea, BUT doesn't always get a response.*

⇒ *Very good idea.*

⇒ *Absolutely get the police involved and let crossing guards give tickets and warning to cars that overshoot the school zone at the intersection.*

⇒ *Most people do not know and practice they rules once they get their license.*

B-3: Crossing Palatine Road at Unsignalized Intersections

Suggested Strategies: Consider the following for Palatine between Windsor and Schoenbeck (exclusive of the intersections):

- Monitor pedestrian use of the area between Windsor and Palatine; take action as necessary. Monitor pedestrian crossings of Palatine Road away from the designated crosswalk. Should volumes warrant, consider additional pedestrian crossing accommodations.
Consider: 7 Don't Consider: 1 Not Sure: 2
Comments:
 - ⇒ *Address problems now. Create passable roadway.*
 - ⇒ *Needs light w/ activation at St. James School on Arlington Heights Road.*
 - ⇒ *Additional crossing should not be considered unless a signal is provided.*
 - ⇒ *Need better access to the park.*
 - ⇒ *Perhaps we need physical barriers at the sidewalks to promote crossings at the major intersections.*
 - ⇒ *Monitor—my guess is that it wouldn't be warranted—but maybe as a way to get families or slow people across the road.*
- Consider signalization. Consider adding traffic signals at intermediate locations if warrants are met and community support is realized. Note that special pedestrian volume warrants, half of standard warrants, are an option when the average crossing speed is less than 4 feet per second.⁹ Signals would assist pedestrian crossings and may facilitate signal progression and local access.
Consider: 8 Don't Consider: Not Sure: 2
Comments:
 - ⇒ *Neighborhood takes middle route and needs safe crossings.*
 - ⇒ *Great idea after hearing more about it. See above. Consider Maple. Keep pedestrian only.*
- Provide marked crosswalks at locations with pedestrian crossings, including in-roadway pedestrian crosswalk lights. At unsignalized locations with pedestrian activity, consider marking crosswalks with substantial signs and thermoplastic pavement markings as discussed above and in Section B-2, above, and in the *Manual on Uniform Traffic Control Devices - Part 7 Traffic Control for School Areas*. In addition, consider in-roadway lights with actuation or passive detection to warn motorists of pedestrians crossing the road; such lights were recently added to the *Manual on Uniform Traffic Control Devices*.¹⁰ Such improvements would also require curb cuts and sidewalks to allow accessible travel across the median.
Consider: 6 Don't Consider: 2 Not Sure:
Comments:
 - ⇒ *No uncontrolled, mid-block pedestrian crossings. Only cross at signalized intersection. Could be mid-block ped crossing with a signal.*
 - ⇒ *Is this possible?*
 - ⇒ *Pedestrian crossings should not be considered without a signal.*
 - ⇒ *Do not add crosswalks in between intersections.*

⁹ See Option to Section 4C.05 of FHWA's *Manual on Uniform Traffic Control Devices, Millenium Edition, Part 4 - Highway Traffic Signals*

¹⁰ See sections 4L.01 and 4L.02, op cit.

B-4: Crossing Driveways and Local Streets along Palatine Rd.

Background and Observations. There are several driveways which sidewalks along Palatine Road will have to cross. Driveways may present lateral slope challenges to the disabled where there is not a wide parkway between the sidewalk and Palatine Road.

Suggested Strategies: Consider using driveway/intersection crossings from *Designing Sidewalks and Trails for Access: Best Practices Design Guide (Federal Highway Administration, 2001)*. See Appendix C.

Consider: 4 Don't Consider: Not Sure:

Comments:

⇒ Seems like a good idea if feasible.

C. Accommodate Bicycle Travel. Consider improving the ability of bicyclists to safely cross Palatine Road.

A network of trails and streets exists in Arlington Heights to provide for bicycle travel (See Figure 5, the Village of Arlington Heights Bikeway Map). Local, collector, and some arterial streets also provide a good network for bicycle travel. For much of this system, Palatine Rd. has been a barrier. The interim and ultimate proposals for improvements to Palatine Road provide a vehicle for eliminating this barrier.

C-1: South Branch of McDonald Creek

Suggested Strategies. If a redesign is feasible, consider constructing a culvert to enable future bicycle facility development across Palatine Rd. at the South Branch of McDonald Creek.

Consider the following ideal features:

- Consider a facility wide enough, high enough, and with sufficient curve radii to allow Village of Arlington Heights maintenance vehicles to enter the underpass from either side of Palatine Rd. Maintenance vehicle access is important to guarantee that the facility will function properly.
- A minimum of 10' interior vertical clearance is suggested.¹¹
- A median air shaft opening to allow light and ventilation into the culvert.
- Good sight distances should be maintained.
- The facility should have sufficient drainage to keep the surface dry. Algae may develop on wet, dark surfaces, posing a safety hazard.
- To aid security concerns, any underpass should be very brightly lit and have a surface that is not conducive to vandalism. Lighting should be vandal-proof.
- The approaches must be compliant with the Americans with Disabilities Act.

Consider: 7 Don't Consider: 3 Not Sure: 1

Comments:

⇒ *Sounds great but will be costly to local municipality. Adjacent to creek? Might be susceptible to flooding.*

⇒ *This can work if done properly.*

⇒ *Determine if feasible.*

⇒ *Could not ensure safety*

⇒ *g. Very good idea.*

¹¹ Federal Highway Administration. *Designing Sidewalks and Trails for Access: Best Practices Design Guide*. September, 2001. Pages 16-7 – 16-8. See also AASHTO's *Guide for the Development of Bicycle Facilities (3rd Edition, 1999)* p.36.

C-2: Windsor Drive

Suggested Strategies. Based on the information available and absent a crossing at the South Branch at McDonald Creek, the Windsor Drive corridor appears to be a critical crossing of Palatine Road for bicyclists. Therefore, consider proceeding with bicycle path crossing at Windsor Drive as proposed in the Project Report for Palatine Road if a crossing at McDonald Creek is not feasible.

Consider: 11 Don't Consider: Not Sure:

Comments:

⇒ *But groups with small children must be considered.*

C-3: Schoenbeck Road

Suggested Strategies. Jurisdiction agencies should consider building bike lanes or wide paved shoulders as additional segments of Schoenbeck Road are reconstructed. Consider cross-sections below from the Illinois Department of Transportation Division of Highways, *Bureau of Design and Environment Manual*, 17-2.01(b), June 1999.

Consider: 7 Don't Consider: Not Sure: 3

Comments:

C-4: Palatine Road

Suggested Strategies. Suitable alternate bicycle routes should be developed along Palatine Road. Consider bicycle guide signs. In addition, consider designated crossings of the Palatine Road median between Windsor and Schoenbeck allowing cyclists to reach the east-west routes without needing to travel to Windsor and Schoenbeck (see the discussion under B-3, above).

Consider: 7 Don't Consider: 2 Not Sure: 4

Comments:

⇒ *Not safe if not at a signal*

⇒ *Neighbors are accepting of cyclists but not cars. It is not too difficult to get E-W through the neighborhood.*