



League of Illinois Bicyclists



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www.BikeLIB.org

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Staff

Ed Barsotti, Executive Director
Aurora
630-978-0583
ed@bikelib.org

Nicole Kemerer, Education Manager
Chicago
312-342-6338
nicole@bikelib.org

Lynn Miller, Project Manager
Springfield
217-787-3354
lynn@bikelib.org

Dean Schott, Outreach Director
Glenview
847-291-7434
dean@bikelib.org

June 1, 2006

Ms. Kathy Ames
Illinois Department of Transportation
2300 S. Dirksen Pkwy
Springfield, IL 62764
RE: BDE Manual bike/ped policy review

Dear Kathy,

Thank you for your time on the phone last week, when we discussed details on CSS as a possible vehicle for bike/pedestrian design training and policy revisions. I welcome the chance to work with you, IDOT staff, and others on a bike/ped module of the CSS training. Illinois is lucky to have nationally-recognized experts who also can contribute to this effort.

Per our discussion, attached is a fairly comprehensive examination of BDE Manual policies relating to bicycle and pedestrian facility design. Specific high and lower impact suggestions are detailed. We look forward to further discussions on these with you and others such as Todd Hill, Scott Stitt, Mike Hine, and Diane O'Keefe.

The passage of the CSS law – driven in large part by bike/ped concerns – brought hope not only for increased public involvement, but for improved non-motorized design policies as well. Last year's IDOT Complete Streets bill, SB508, gained legislative support (41-13 in Senate) and then early interest from the Governor's policy staff. One item in SB508 was a transition plan for bike/ped design policies. We hope that this momentum leads to policy action, perhaps under the hat of CSS.

Sincerely,

Ed Barsotti

Cc: Todd Hill, Mike Hine, Diane O'Keefe, Scott Stitt

IDOT BDE Manual bike/ped excerpts and comments

League of Illinois Bicyclists, June 2006

Below are selected passages from IDOT's current BDE Manual, used on state road projects.

In **green** are particular points that we believe are especially good, or where we want to show our agreement.

In **red** are issues that we have concerns with, or would like to offer suggestions.

[Bracketed, blue italics] indicate our comments to elaborate on the above.

Bold is used for emphasis of top priority issues.

Chapter 17 – BICYCLE AND PEDESTRIAN ACCOMMODATIONS

When planning transportation improvements, the Department considers the travel needs of all users of a transportation corridor including bicyclists and pedestrians. **Bicycle and pedestrian travel demand in the vicinity of a project is determined early in the project planning phase. When sufficient demand is indicated, the Department will [!!!] provide the appropriate accommodations.**

[This is a very powerful statement, essentially a "Complete Streets" policy similar to the FHWA's "Accommodating Bicycle and Pedestrian Travel" policy recommendation. However, some BDE policy specifics (to be detailed) retreat from this commitment.]

The correct application of the criteria and guidelines presented in Chapter 17 will result in consistent designs and subtle roadway design changes that will facilitate bicycle and pedestrian travel. Such changes will provide improved transportation opportunities for both bicyclists and pedestrians.

...

17-1.02 Policies

During the development of highway projects, give consideration to accommodating bicyclists and pedestrians.

Assess bicycle travel demand during the early planning stage of a project. **Provide bicycle accommodations when the warrants presented in Section 17-1.03 are met. For projects that include bicycle accommodation, forward a copy of the draft Phase I report to the Bureau of Design and Environment's Bicycle Coordinator. [Both those with and without accommodation (not including the exceptions, below) could be sent to the bike coordinator, for a better evaluation on the effectiveness of policy and design choices.]**

Where existing or anticipated bicycle and/or pedestrian traffic presents a potential conflict with motor vehicle traffic, strive to minimize the detrimental effects on all highway users who share the facility.

On bridge deck replacement or rehabilitation projects, bicyclists will be accommodated on the bridge when bicycles are permitted to operate on the roadway approaches.

If independent bikeways or trails are impacted as a result of a highway project, treat such facilities as low-volume roadways in accordance with Chapter 11. If certified by the State or Local Agency having jurisdiction as programmed for construction no later than five years beyond the anticipated completion of the highway project, treat proposed or planned paths and trails that cross or parallel a roadway in the same manner as existing roadways.

17-1.02(a) Exceptions

Consider accommodating [How about: "When warrants are met, accommodate"] bicycles and pedestrians on all projects except:

□ along fully access controlled highway facilities on which bicycle and pedestrian access is prohibited (Illinois law allows the Department to restrict access by signing). Note: Consideration for bicycle and pedestrian

accommodation crossing a fully access controlled highway will be granted an exception from consideration only if the traversing road is also a fully access controlled highway; and

□ existing pavement resurfacing projects that do not widen the existing traveled way nor provide stabilized shoulders (e.g., SMART, 3P). However, in the development of SMART and 3P projects, consider accommodations which do not change the overall scope of work, such as striping changes, but are consistent with Department criteria and the needs of bicyclists (see Section 17-2.01(g)).

17-1.02(b) Partial Exceptions

On existing pavement resurfacing projects that do not widen the existing traveled way nor provide stabilized shoulders (e.g., 3-P, SMART) bicycle accommodation will generally be limited to restriping and/or resigning existing bike lanes or shared roadways. However, consideration may also be given for new bicycle accommodation on 3-P or SMART projects where local support is evident and the accommodated project remains limited to the overall scope of the original road work. Design criteria should be consistent with Section 17-2.01. Design studies are not required.

17-1.03 Bikeway Warrants

Provide adequate on-road accommodations for bicycle travel in highway projects when any of the following situations exists:

□ The highway or street is designated as a bikeway in a regionally or locally adopted bike plan or is published in a regionally or locally adopted map as a recommended bike route.

[A note on how this warrant has sometimes been misinterpreted: This is intended for roads that are already bike-friendly – to keep them that way. If a road is not listed as recommended on a map, it does NOT mean there is not a latent demand for bike accommodation. This should be clarified.]

□ The projected two-way bicycle traffic volume (see Section 17-1.04) will approximate 25 ADT or more during the peak three months of the bicycling season at a highway or street location where the current vehicular traffic volume will exceed 1000 ADT. Estimate the bicycle ADT projection based on a five-year time frame from completion of the project.

□ The route provides primary access to a park, recreational area, school, or other significant destination.

□ The route provides unique access across a natural or man-made barrier (e.g., bridges over rivers, bridges over railroad yards, bridges over freeways or expressways, highways through a National Forest).

□ The highway project will negatively affect the recreational or transportation utility of an independent bikeway or trail. Highway projects will negatively affect at-grade paths and trails when they are severed, when the projected roadway traffic volumes increase to a level that prohibits safe crossings at-grade, or when the widening of the roadway prohibits sufficient time for safe crossing. (For off-road Bicycle Path Warrants, see Section 17-2.02(a)).

17-1.04 Determining Bicycle Travel Demand

The concepts of identifying cycling origins and destinations, and thus travel demand, are discussed in the FHWA publication *Selecting Roadway Design Treatments to Accommodate Bicycles*. The following additional guidance is provided to determine bicycle travel demand where bicycle travel is difficult to predict:

1. Urban and Suburban Areas. Because of the potential for bicycle travel, bicycle accommodation will likely be warranted in the majority of urban and suburban areas, particularly at points of community development that generate, attract, or result in commercial, recreational, or institutional establishments near or along highways.

2. Rural Towns. Bicycle accommodation may be warranted in rural towns located on main highways where bicycle travel within the community and from the outlying populated areas could justify such accommodation.
3. Rural Highway Projects. Rural highway projects that provide unique access over a major barrier, such as a river, would be expected to meet the warrants.
4. Unpopulated Rural Areas. In unpopulated rural areas, typical origins and destinations are far less frequent. Thus, the need for bicycle accommodation may not be warranted.

[The warrants of 17-1.03 and the summary of 17-1.04 are very good, and realistic.]

17-1.04(a) Assessment of Bicycle Travel Within Highway Projects

Bicycle origins and destinations should be reviewed for each project and noted in a checklist format. All checklists are in the Section 17-6. Such information provides the basis for evaluating whether or not bicycle accommodation is necessary within a project. This section provides two checklists, an example map, and a travel assessment form that should be included in all Phase I reports, except for projects excluded in Section 17-1.02(a). *If projects include accommodation for bicycles, notify BDE's Bicycle Coordinator. If bicycle accommodations will be excluded from the project, complete and include, in all applicable Phase I reports, the forms presented in Figures 17-1A, 17-1B, and 17-1C [Similar to before, add: "and submit form copies to BDE's Bicycle Coordinator."]*

17-1.04(b) Bicycle Travel Generators in Project Vicinity

Review and record the potential bicycle travel generators in the vicinity of the project, such as those shown in the checklist in Figure 17-1A. Note on the checklist the types of generators within 1 mile (2 km) of the project corridor. To the Phase I Report, attach a map of this area showing the general location of these generators as illustrated in Figure 17-1B. Sections of Municipal or Township maps are acceptable, as well as photocopies of aerial photos. The map will serve to indicate where bicyclists will cross or ride along the corridor. It will also serve to indicate the absence of any of the destinations presented in Figure 17-1A and, thus, provide justification for excluding bicycle accommodation.

17-1.04(c) Public Coordination

The organizations presented in Figure 17-1C shall be contacted *to assess any nearby bicycle travel or planned development of recreational trails or other generators. [How about "to help assess any bicycle travel..." If citizen groups (who may lack specific local knowledge or contacts) or local agencies (who may lack expertise in this topic) do not provide info on bike travel, it does not mean that there is none. The guidelines of 17-1.04 and the analyses of 17-1.04(b)&(d) do a very good job of assessing the LATENT bicycle travel demand.]* Include documentation of coordination in the Phase I report.

Generators	Yes	NA	Generators	Yes	NA
Residential Areas	<input type="checkbox"/>	<input type="checkbox"/>	Shopping Centers	<input type="checkbox"/>	<input type="checkbox"/>
Parks	<input type="checkbox"/>	<input type="checkbox"/>	Hospitals	<input type="checkbox"/>	<input type="checkbox"/>
Recreation Areas	<input type="checkbox"/>	<input type="checkbox"/>	Employment Center	<input type="checkbox"/>	<input type="checkbox"/>
Churches	<input type="checkbox"/>	<input type="checkbox"/>	Government Offices	<input type="checkbox"/>	<input type="checkbox"/>
Schools	<input type="checkbox"/>	<input type="checkbox"/>	Local Businesses	<input type="checkbox"/>	<input type="checkbox"/>
Libraries	<input type="checkbox"/>	<input type="checkbox"/>	Industrial Plants	<input type="checkbox"/>	<input type="checkbox"/>
Existing Bicycle Trails	<input type="checkbox"/>	<input type="checkbox"/>	Public Transportation Facilities	<input type="checkbox"/>	<input type="checkbox"/>
Planned Bicycle Trails	<input type="checkbox"/>	<input type="checkbox"/>	Other ()	<input type="checkbox"/>	<input type="checkbox"/>

CHECKLIST FOR BICYCLE TRAVEL GENERATORS IN PROJECT VICINITY

Figure 17-1A

17-1.04(d) Bicycle Travel Assessment

Based on the bicycle travel indicators presented in Sections 17-1.04(b) and 17-1.04(c), address the questions in the bicycle travel assessment form (see Figure 17-1D) and attach the completed form to the Phase I report.

17-1.05 Maintenance and Jurisdiction

Responsibility for ongoing maintenance of bikeway facilities within the roadway surface is assumed to be an integral part of roadway maintenance. Responsibility for maintenance of bikeway and pedestrian facilities separated from the roadway surface should be delegated by Agreement with local/State jurisdictions or others early in the planning process (see Chapter 5).

17-1.06 Right-of-Way

Acquire right-of-way for bikeway facilities in accordance with existing IDOT land acquisition policies and procedures. Additional right-of-way required for bikeway purposes should be purchased in conjunction with the right-of-way purchase of the overall roadway improvement.

Organization	Yes	NA	Organizations*	Yes	NA
Metropolitan Planning Organization (if applicable)	<input type="checkbox"/>	<input type="checkbox"/>	League of Illinois Bicyclists*	<input type="checkbox"/>	<input type="checkbox"/>
Local Municipalities	<input type="checkbox"/>	<input type="checkbox"/>	Illinois Department of Natural Resources*	<input type="checkbox"/>	<input type="checkbox"/>
Park or Forest Preserve Districts	<input type="checkbox"/>	<input type="checkbox"/>	Illinois Trails Conservancy*	<input type="checkbox"/>	<input type="checkbox"/>
Sub-Regional Planning Council (as appropriate)	<input type="checkbox"/>	<input type="checkbox"/>	Chicagoland Bicycle Federation (District 1 only)*	<input type="checkbox"/>	<input type="checkbox"/>

*Note: Addresses are presented in Section 17-5.

CHECKLIST FOR ORGANIZATIONS AND PUBLIC COORDINATION

Figure 17-1C

[Note: LIB's address is now 2550 Cheshire Dr., Aurora, IL 60504. CBF's has changed to 9 W. Hubbard St., Suite 402, Chicago, IL 60610-6545.]

17-1.07 Funding

Bicycle facilities intended for transportation purposes, which are necessary for the safe travel of bicyclists within an improvement corridor, are considered an integral part of a highway project for Federal funding purposes, and thus are eligible for Federal cost participation. **If conditions within the roadway prohibit the**

inclusion of adequate bicycle accommodation, necessary off roadway accommodations may be included within the overall improvement cost-sharing formula.

[This is a very key statement, providing flexibility for off-road accommodations at the overall project cost-sharing formula, NOT at the 50/50 construction cost split and other cost-sharing rates cited in IDOT's sidewalk policy (5-5.02b). Replacing "may be included" with "shall be included" would make this statement less vague.

The qualifier, of course, is whether the proposed on-road bike accommodation would be "adequate." Our main concern is on higher-speed, busy suburban-style state roads – where an almost-complete refusal to implement bicycle lanes (17-2.01c) leaves the very inadequate wide curb lane (17-2.01b) as the only accommodation specified by IDOT's urban cross-section policy. The reasons why this is not "adequate" will be detailed later.

The IL53 project (IL56-IL54) is an example where wide curb lanes were considered inadequate by the communities, Western Avenue in Park Forest was another. In both cases, the communities asked IDOT to skip the wide curb lanes (that IDOT was going to pay for) and instead apply that money to a sidepath. IDOT refused, directing the communities to other funding sources as specified below.

It would be beneficial to build in more flexibility into CSS and BDE policy, on this issue. However, existing policy already permits off-road accommodations' cost share to be proportional to the rest of the project – if a definition of "adequate" or "inadequate" on-road accommodation can be developed. This could be part of a facility selection guide – on-road options vs. off-road as a function of road conditions. As discussed before with Todd Hill, we would like to work with IDOT to develop such a guide for the BDE policy. More on this later.]

Accommodations beyond those which are determined necessary from the travel demand analysis in Section 17-1.04, but may be desired or preferred by local officials, could be funded through several options as follows:

- initiated by others than IDOT and submitted as a candidate for the Transportation Enhancement Program funding (see Chapter 18);
- initiated by others than IDOT and submitted for consideration from other appropriate TEA-21 funding categories, such as the Congestion Mitigation and Air Quality (CMAQ) or various Surface Transportation Program (STP) categories;
- considered on a cost-shared basis, similar to the current IDOT sidewalk policy; or initiated by others than IDOT and funded entirely through outside governmental organizations.

1) Where would bicyclists cross the project?	_____
2) Where would bicyclists need to ride parallel to the project?	_____
3) Does the project provide unique or primary access (see Note 1):	
• Across a river, railroad, highway corridor or other natural or man-made barrier?	_____
• Into or out of a residential or commercial development?	_____
• Between communities or other likely significant destinations — such as a university campus or recreation facility?	_____
4) Are there any secondary roads parallel to the project that could reasonably be used by cyclists as alternates to access these destinations (see Note 2)?	_____
If so, how far from the corridor are these roads? (A key consideration with parallel roads is whether there are significant destinations located on the project corridor that bicyclists would need to access.)	_____
5) Do local governmental entities or other organizations have plans for bicycle facilities or generators, such as a park or recreational area that could affect this project or generate additional travel in the project corridor?	_____

Notes:

1. Unique or primary access is defined as access that is not otherwise available within a reasonable riding distance of 1 mile (2 km).
2. Secondary roads that could be used as alternate routes are usually within 2-3 blocks of projects in urban areas, within 0.5 miles (1 km) in suburban areas, and within 1 mile (2 km) in rural areas.

FORM FOR BICYCLE TRAVEL ASSESSMENT

17-1(8)

Figure 17-1D

17-2 DESIGN CRITERIA FOR BICYCLE FACILITIES

The Department utilizes the AASHTO publication *Guide for the Development of Bicycle Facilities* as the basis for design guidance. Further guidance is provided in the FHWA publication *Selecting Roadway Design Treatments to Accommodate Bicycles*. Also, coordinate bicycle facility design with the cross section criteria presented in Part IV, “Roadway Design Elements,” (Chapter 39) and Part V, “Design of Highway Types.”

17-2.01 On-Road Accommodations

17-2.01(a) On-Road Bikeways on Rural Roadways

Bicycle accommodation on rural cross sections consists of paving a portion of the shoulder. Paved shoulders can accommodate most types of bicycle travel very efficiently and offer benefits beyond accommodating bicyclists (e.g., added safety, reduced maintenance, rural mail delivery). See Figure 17-2A for width criteria.

Vehicular ADT (current)	Bicycle ADT \geq 25 (projected) ⁽¹⁾
Under 1000	1 ft (300 mm) ⁽²⁾
1000 to 2999	4 ft (1.2 m)
3000 or more	4ft – 6 ft (1.2 m - 1.8 m) ⁽³⁾

Notes:

1. Estimate bicycle ADT according to Section 17-1.04.
2. This value reflects 3R criteria.
3. Paved shoulder width should be increased to 6 ft (1.8 m) as follows:
 - where posted speeds are 55 mph or greater, or
 - where posted speeds equal or exceed 45 mph in areas with high truck, RV, or bus traffic or where usage by inexperienced bicyclists is expected.

Where rumble strips are used, the paved shoulder should be sufficiently wide to provide a minimum 3 ft (1 m) smooth width to the outside of the rumble strip.

MINIMUM PAVED SHOULDER WIDTHS TO ACCOMMODATE BICYCLES ON RURAL CROSS SECTIONS

Figure 17-2A

[We believe this rural cross section bike accommodation policy is excellent as written, adequately serving bicyclists where need is appropriate. In some designs, the rural SRA 10' paved shoulder guidelines (with ample space clear of rumble strips) have exceeded the above specifications.]

Transitions from rural sections into urban sections (e.g., driveway entrances, intersections) should accommodate bicyclists' through movements by providing additional curb lane width to the curb and gutter section. Figure 17-2B illustrates an acceptable approach.

Avoid using rumble strips on shoulders where bicycles are allowed to operate (see Chapter 34). **When rumble strips are warranted** to address a high-crash location or a history of run-off-the-road crashes, and there is a need to accommodate bicycle travel, **provide a minimum 3 ft (900 mm) smooth paved area to the outside of the rumble strip as per the Highway Standards.** The design should be coordinated with and approved by BDE.

17-2.01(b) On-Road Bikeways On Shared Urban Roadways

On a shared roadway facility, bicyclists and motorists share the same travel lanes without a striped separation. Minimum cross sections are shown in Figure 17-2C. Shared roadways have particular application where physical constraints such as buildings, narrow sidewalks, or environmentally sensitive areas prevent widening a street to provide bike lanes.

[The last sentence is a very key point. Wide curb lanes were intended to be used as a last resort in denser, urban areas that are truly restrictive in available space. Instead, these are being overused (instead of going to 17-2.01c's bike lanes) in more open urban/suburban areas with larger setbacks and faster speeds. There has been serious IDOT reluctance to use bike lanes, despite: 1) even stronger national trends towards bike lanes since IDOT's 1995 policy; 2) studies showing bike lanes significantly increasing bike usage, while decreasing unsafe wrong-way riding and car-bike accident rates. One reason sometimes cited is to "not encourage inappropriate users to the busy roadway."

This overlooks the need to provide adequate accommodation for those who need to use the road, regardless.

The bike accommodation of too many projects on faster, suburban-style state roads is merely the 13' wide curb lane – often without even a sidewalk as an option. This is not adequate, comfortable, or safe for even the most experienced cyclists. And with non-grid development style that relies heavily on arterials for connectivity (alternate routes lacking), those who bike by choice or necessity are put in bad positions.

IDOT's bike accommodation policy for urban (curbed) cross sections borrows heavily from FHWA's 1994 report "Selecting Roadway Design Treatments to Accommodate Bicycles" – which itself needs revision now. IDOT's wide curb lane policy is geared towards advanced "Group A" cyclists but falls short of "the minimum design" recommendations in the report's Group A tables. For roads over 10,000 AADT with the "best cases" of no parking, adequate sight distance, and low truck and bus volumes, FHWA recommends 14' wide curb lanes for average speeds of 40mph or less, 15' for 41-50mph, and 6' paved shoulders (function like bike lanes) for over 50mph. Again, industry trends now put more emphasis on bike lanes or paved shoulders, even for Group A cyclists.

For these roads, FHWA's "desirable design for any route on which (less advanced Group B/C cyclists are) likely to ride" includes bike lanes with width of 5' (40mph or less) or 6' (over 40mph). From my experience and observation, suburban-style arterial roads are used by more than just Group A cyclists, in large part due to: a) the destinations (e.g., jobs) that are located on (and only accessible from) these roads; and b) the lack of alternative routes providing connectivity around town.

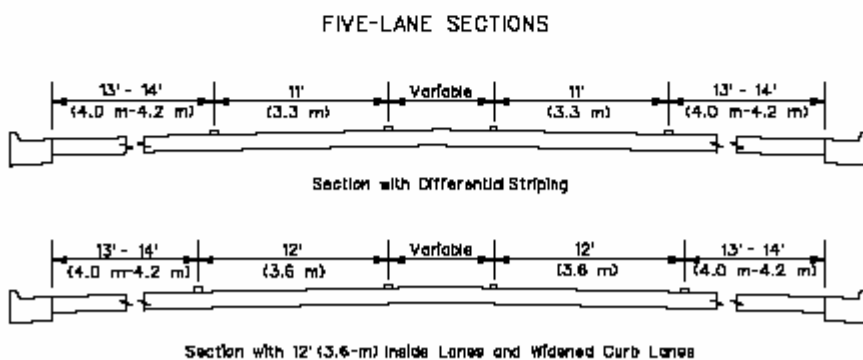
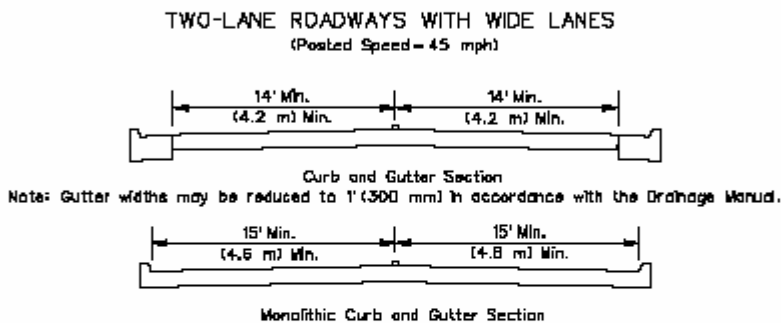
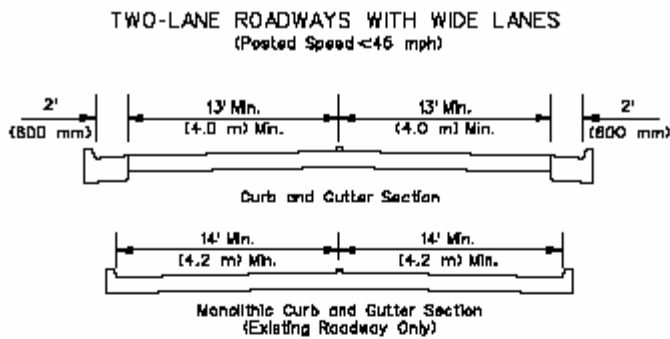
For these reasons, the current policy implementation is too often inadequate in serving these roadway users. As mentioned in 17-1.07, we propose an urban cross section facility selection guide starting with FHWA's report and IDOT's existing policy, but adding into the mix:

- *Sidepaths (trails parallel to the road, essentially widened sidewalks). The preference for sidepaths increases among many cyclists – especially Group B and C – as speeds and traffic levels increase. Sidepath suitability increases as the number of intersections/crossings decrease – which is the case on many limited-access, higher speed arterials. Intersection risks decrease with careful design features. A sidepath on each side is preferred, but if not, safe crossing access to destinations on the other side is a must.*
- *The increasing national trends towards bike lanes.*
- *Connectivity, access to destinations on the road, and availability of realistic alternative routes.*
- *Will sidewalks be included, and will they be continuous?*
- *Quantifiable tools measuring user comfort level, such as the Bicycle Level of Service model used in IDOT bike maps and by CATS.*

Again, we offer our (pro-bono) help to work with IDOT on the details of a new selection guide for the BDE policy.]

Wide curb lanes usually are the most effective and efficient means of accommodating bicycle travel in urban roadway sections. The width of the lane is the most important factor for allowing vehicles sufficient room to pass a slower-moving bicyclist. *As speeds increase or as the*

percentage of truck traffic increases, the width should increase according to the criteria presented in Figure 17-2C. [From our observation, it seems that 13' is the norm on 45mph multi-lane suburban roads. In a couple instances, this was increased to 14' after a detailed call for better accommodation.] Measure the width of the lane from the lane stripe to the joint between the pavement and the gutter. If no joint exists, as with monolithic pavement, take the measurement to the face of the curb. Bicycles, because of their narrow tires, cannot be expected to be ridden on or near a longitudinal pavement joint because of the potential for catching the wheel in the joint and throwing a rider into traffic.



MINIMUM CROSS SECTIONS FOR SHARED URBAN ROADWAYS
(Unmarked Bicycle Lanes)
Figure 17-2C

Gutter widths are not considered acceptable for bicycle travel. A bicyclist riding in the gutter is often forced to leave this area because of debris or broken pavement. If the pavement/gutter joint is vertically uneven or has separated from the gutter, a bicyclist can become trapped and forced to

make unsafe maneuvers.

17-2.01(c) On-Road Marked Bicycle Lanes on Urban Roadways

Bicycle lanes that are marked on curbed streets serve to separate bicycle traffic from motor vehicle traffic. The provision of marked bike lanes **may be considered appropriate** if any of the following conditions exist:

- A combination of speeds (i.e., posted 45 mph or less) and high vehicular traffic volumes exist, especially on roadways with high truck, RV, or bus traffic (refer also to *Selecting Roadway Design Treatments to Accommodate Bicycles*).
- The bicycle lanes provide a linkage to a continued marked bikeway along or at either end of the project.
- The roadway provides a key linkage to a destination, such as a college or recreational area, which will be frequented by casual bicyclists.

The following are minimum cross section requirements:

- On curbed streets without parking, locate the bicycle lane next to the gutter, as shown in Figure 17-2D.

[The “may be considered appropriate” phrase seems too loose for interpretation for a topic that many have not received training on. Perhaps stating that the provision of bike lanes “is appropriate” more closely matches the intent and the wording in the AASHTO bike guide and the FHWA report.]

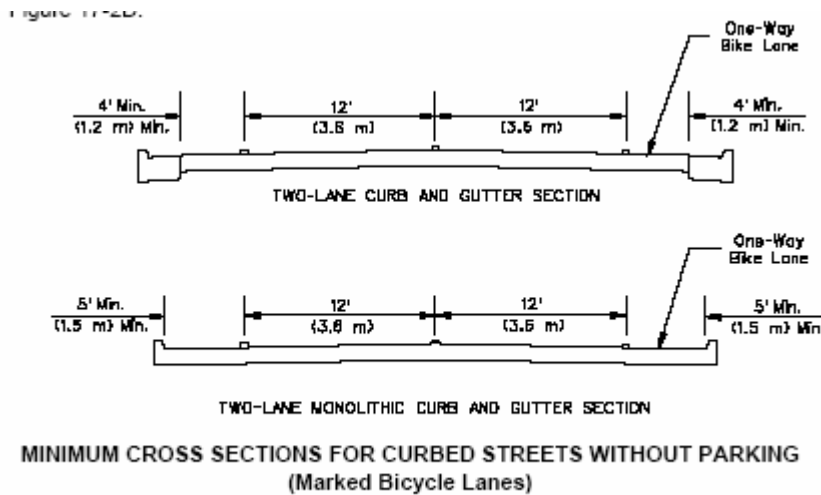
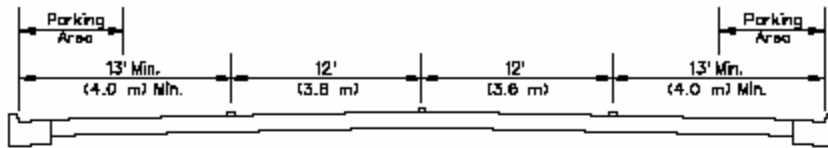
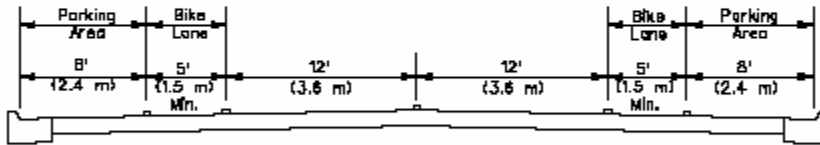


Figure 17-2D

- Where parking is permitted, locate the bicycle lane between the parking lane and the through traffic lanes as shown in Figure 17-2E.



TWO-LANE SECTION WITH
COMBINED BICYCLE AND PARKING USE AREAS
(Unmarked Bicycle Use Area)



TWO-LANE SECTION WITH
MARKED PARKING
(Marked Bicycle Lanes)

MINIMUM CROSS SECTIONS FOR CURBED STREETS WITH PARKING

Figure 17-2E

- Where parking is allowed on a street, provide additional parking-lane width, above the required minimum, under the following conditions:
 - + where there is frequent parking turnover,
 - + where parked vehicles are mostly commercial vehicles, or
 - + where posted motor vehicle speeds equal 45 mph.

Design bicycle lanes as one-way facilities that carry bicycle traffic in the same direction as adjacent motor vehicle traffic. Two-way bicycle lanes on one side of the roadway (without physical separation) are unacceptable because they promote riding against the flow of motor vehicle traffic. Wrong-way riding is a major cause of bicycle crashes nationally and violates the *Illinois Vehicle Code* (625 ILCS 5/11-1505). Locate one-way bicycle lanes that are on one-way streets on the right side of the street, except in areas where placing the bicycle lane on the left will decrease the number of conflicts (e.g., those caused by heavy bus traffic).

Place bicycle lanes that are adjacent to dedicated bus lanes between the vehicular traffic lane and the bus lane as shown in Figure 17-2F. Where roadway width is limited, bicycles and buses may share an outside lane with a minimum width of 16.5 ft (5 m) to the curb face.

17-2.02 Separated Bicycle Facilities

Bicycle (or shared-use) paths are facilities on exclusive rights-of-way with minimal cross flow by motor vehicles. Bicycle paths can serve a variety of purposes. They can provide a commuting bicyclist with a shortcut through a residential neighborhood, such as a connection between two cul-de-sac streets. Bicycle paths can be located along abandoned railroad rights-of-way, on former canal towpaths, river banks, and other similar areas. Bicycle paths also can provide access to areas that are otherwise only served by limited-access highways that are closed to bicycles. Appropriate locations can be identified during the planning process.

Bicycle paths should be considered extensions of the highway system. They are intended for the preferential use of bicycles in much the same way as freeways are intended for the exclusive or preferential use of motor vehicles. There are many similarities between the design criteria for bicycle paths and those for highways (e.g., horizontal alignment determination, sight distance requirements, drainage, signing and markings). However, some criteria (e.g., horizontal and vertical clearance requirements, grades, pavement structure) are dictated by the operating characteristics of bicycles that are substantially different from those of motor vehicles (see Figures 17-3A and 17-3B). During design, always be cognizant of the operating characteristics of bicycles

and how they influence the design of bicycle paths. The following sections provide guidance for designing safe and functional bicycle paths.

17-2.02(a) Bicycle Path Warrants

Separated bicycle paths shall be approved by BDE, be accompanied by a transfer of maintenance and jurisdictional responsibility to local entities (see Chapter 5 for information on Local Agency Agreements and Jurisdictional Transfers), and meet one or more of the following conditions:

□ A bikeway located within the adjacent roadway is considered hazardous because of factors such as motor vehicle traffic volumes and/or speeds.

[This is too open for interpretation. The facility selection guide proposed above can provide guidelines and reduce the need for BDE approval.]

□ There are no alternatives for bikeways on parallel routes within 1 mile (2 km) of the project corridor.

[This seems too far away. Also, what about access to destinations along the route?]

□ There is a commitment to provide bike-path continuity for an extensive length of the roadway.

The AASHTO publication *Guide for the Development of Bicycle Facilities* includes detailed information on the design and location of bicycle paths. Further guidance on bicycle paths is also available in the Rails to Trails Conservancy publication *Trails for the Twenty-First Century*
| *Planning, Design and Management Manual for Multi-Use Trails*.

17-2.02(b) Bike Paths Versus Sidewalks

Both AASHTO and FHWA state that sidewalks generally are not designed nor recommended for bicycle travel, primarily because of their narrow width and multiple opportunities for conflicts with driveways and commercial entrances. Some suburban sidewalks, however, may be preferable to on-road accommodations, particularly if they provide adequate width, are located on both sides of the roadway (to encourage one-way travel), and are designed to minimize conflicts. *[Excellent statement. "Minimizing conflicts" could be clarified by adding "at road and driveway intersections."]* In contrast, bicycling on storefront sidewalks in urban areas or in residential areas with multiple driveways should be strongly discouraged.

When assessing the appropriateness of using a sidewalk for bicycle travel, conduct a thorough survey of the area (e.g., conditions, potential conflicts), review the AASHTO publication *Guide for the Development of Bicycle Facilities*, and research any local ordinances prohibiting bicycles on sidewalks. Any decision to utilize sidewalks for bicycle accommodations shall be approved by BDE. *[A facility selection guide could incorporate some of this and reduce the need for BDE approval.]*

17-4 PEDESTRIAN ACCOMMODATIONS

17-4.01 General

Pedestrian accommodations are an integral part of urban and suburban transportation corridors.

They facilitate pedestrian travel and access to public transportation, thereby contributing to alleviation of urban traffic congestion. The most pressing need for accommodation is at points of community development that result in pedestrian concentrations near or along the highway, such as at schools, public transportation stations and stops, local businesses, industrial plants, hospitals, churches, shopping centers, parking lanes, etc. Accommodations can include sidewalks, elevated walkways, grade-separated structures, stairs, curb ramps, and traffic signal devices.

17-4.02 Policies

Consider the travel needs of all users of a transportation corridor when planning transportation improvements.

If during the planning phase of a project, pedestrian travel in the vicinity of the project is determined to be sufficient to warrant consideration, provide appropriate accommodations.

[This is a positive commitment, to do it where there is need. This does not say that accommodations must be requested by the local agency or that accommodations will be omitted if the local agency does not agree to the financial terms.]

Policies relating to construction and maintenance, including sidewalk/curb ramps for the disabled, are addressed in Chapter 58. Financial responsibilities for pedestrian accommodations within Municipalities are addressed in Chapter 5.

17-4.03 Warrants

Pedestrian accommodations will be considered appropriate if they are not already available and any of the following conditions exist:

- there is current evidence of frequent pedestrian activity;
- there is a history of pedestrian-related crashes;
- the roadway improvement will create a safety impediment to existing or anticipated pedestrian travel (e.g., adding lanes so that the improvement itself acts as a barrier to pedestrian traffic);
- there is urban or suburban development that would attract pedestrian travel along the route to be improved;**
- pedestrian-attracting development is expected along the route within five years of project completion, either as documented in a local plan or anticipated as a factor of similar development history; and/or**
- the roadway provides primary access to a park, recreation area or other significant destination, or across a natural or man-made barrier.

[Good warrants. The summary of 17-1.04 seems just as appropriate here, and could be repeated.]

Overpasses and underpasses will be evaluated on a case-by-case basis considering the type of pedestrian travel, travel generators (e.g., schools, factories, stadiums, parks, transit terminals, shopping districts), the amount of anticipated non-motorized traffic, and the safety impacts of not providing the accommodations. Anticipated pedestrian trip length to generators should be 1 mile (2 km) or less and the adverse travel distance alleviated by construction to the facility should be greater than 0.5 miles (1 km).

17-4.04 Design

Sidewalks normally are 5 ft (1.5 m) wide. When obstructions do not allow a width of 5 ft (1.5 m) for a short distance, provide a clear sidewalk width of at least 3 ft (1 m) for adequate passage of pedestrians and the disabled. Sidewalks wider than 5 ft (1.5 m) may be allowable if compatible with the local sidewalk network or if intended to accommodate a wider range of users, such as bicyclists. Facilities intended to also accommodate bicycle travel should follow the guidance in Section 17-2. Typical sections for sidewalks along roadways are presented in Chapter 48.

Policies and guides for sidewalk/curb ramps for the disabled are addressed in Chapter 58.

Project limits may be extended beyond highway improvements for reasonable distances to include necessary pedestrian facilities at nearby intersections, to provide access to public transportation facilities, or to avoid short sidewalks gaps. Any such extensions should be reflected in the Phase I report.

17-4.05 Documentation

Document in the Phase I report the reasons for providing or not providing pedestrian accommodations. Include a discussion of the coordination with local officials concerning, at a minimum, the selection of access routes for the disabled. Indicate the location of the ramps to be provided on the Intersection Design Studies. The impact of access routes for the disabled should be assessed in any request for a design exception.

Chapter 5 - LOCAL AGENCY AGREEMENTS

5-3.07 Sidewalks

The Municipality will maintain any new or replacement sidewalks the Department provides in the improvement, including those constructed on structures.

5-3.08 Right-of-Way Under Municipal Jurisdiction

Use the following guidelines to determine maintenance responsibility for right-of-way under Municipal jurisdiction:

1. Urban Cross Section. The Municipality will maintain the entire right-of-way outside of that maintained by the Department. This includes, but is not limited to, Municipal utilities, landscape plantings, parkways, guardrails, crosswalks, and stop line markings.

5-3.10 Bicycle Paths

The Municipality will maintain any bicycle paths associated with the State highway project.

Incorporate the following paragraph in the Agreement:

The _____ agrees to assume responsibility for the administration, control, reconstruction, and maintenance of the bicycle path in its entirety. The _____ further agrees to indemnify and hold harmless the State, its officers, employees, and agents from any and all claims, lawsuits, actions, costs, and fees (including reasonable attorney fees and expenses) of every nature and description arising from, growing out of, or connected with the construction and/or operation of the bicycle path.

5-5.01 State Responsibility

The State is financially responsible for preliminary engineering, right-of-way, construction, and construction engineering for the traffic lanes on the State highway and the appurtenances related to the traffic lanes for which the State has jurisdiction.

5-5.02 Municipality Responsibility

The Municipality is financially responsible for preliminary engineering, right-of-way, construction, and construction engineering for the items specified in the following sections.

5-5.02(b) Sidewalks

For sidewalks, the Agreement will be based on the following to determine the division of cost between State and Municipality:

1. New and Deteriorated Sidewalks. Use the criteria in Chapters 17 and 48 to determine the warrants for sidewalks. **If these criteria are met and the Municipality agrees to maintain the sidewalks**, proportion the improvement costs associated with new or deteriorated sidewalks as follows:
 - a. New Sidewalks. **Proportion the cost equally (i.e., 50%/50%) between the State and Municipality for new sidewalks** within the project termini or for short distances outside the project termini as may be required to connect sidewalks to significant pedestrian generators (e.g., schools, transit facilities). The Phase I Study Report will document the need for sidewalk construction.
 - b. Deteriorated Sidewalks. The Municipality will pay 100% of the cost to remove existing deteriorated sidewalks. **Proportion the cost 50%/50% between the State and Municipality for deteriorated sidewalk replacement.**
 - c. **Utility Adjustments and Other Items. The Municipality is 100% financially responsible for utility adjustments, pedestrian barriers, retaining walls, and other similar items that are required solely for sidewalk construction not necessitated by the IDOT project.**
 - d. **Right-of-Way. The Municipality is 100% financially responsible for right-of-way if acquired solely for sidewalk construction.** Also, the Municipality will pay 100% of the construction costs for sidewalks associated with the construction of onsystem parking not necessitated by the IDOT project. **The State will pay 100% for right-of-way if additional right-of-way is required to construct an IDOT-proposed highway cross section.**
 - e. Sidewalk Removal and Replacement. The State is 100% financially responsible for removing and replacing existing sidewalks if such a need is caused by the construction of an IDOT highway improvement.

If sidewalk construction will adversely delay the improvement, consider deleting sidewalk construction from the contract. All sidewalk construction will be considered straight State funded.

2. Adjustment of Existing Sidewalks. If an existing sidewalk requires adjustment due to an IDOT improvement, the State will pay 100% of the adjustment cost. The Department will construct the replacement either in kind or in accordance with IDOT sidewalk criteria, whichever is more economical. The Municipality is 100% financially responsible for sidewalk adjustments that are caused or initiated by a work request from the Municipality.

3. Curb Ramps. See Chapter 58 for criteria related to curb ramps.

[Regarding the cost-share issues in Red: requiring local agencies to pay a higher rate for sidewalks (and other ped features) than for the rest of the road project implies an “optional amenity” philosophy about accommodating non-motorized users. This directly contradicts the key statements of 17-4.01 and 17-4.02, and it has been a major factor in many gapped and omitted sidewalks. We have investigated policies in 17 other states and found IDOT’s to be near the bottom on this topic. We have advocated that any cost share be the same as the rest of the project.]*

(- Sometimes local agencies choose to require developers to build sidewalks when parcels are developed. Unfortunately, this has often led to sidewalks only at businesses/development fronting the state road, but not along large subdivisions that back to the state road.)*

In addition, we suggest where sidewalks and ped features are warranted by IDOT, that they automatically be built by IDOT – without requiring the locals to initiate the request. If IDOT desires to continue the requirement for local agencies to maintain the sidewalks, then that should be considered as a mandatory “price to pay” for the benefit of the state making the road improvement – and building the sidewalks. This approach is not that unusual. And, if there are special circumstances for NOT building a sidewalk where needed, the local agency may provide justification for BDE to consider for approval.

The FHWA now provides good guidance on sidewalks as a function of adjacent land use – including placement on one or both sides of the road. This could be incorporated into IDOT policy, as well.]

Type of Work	State		Village, City, County, Township		Total
	Cost	%	Cost	%	
All construction costs excluding the following:	\$	100	NA	NA	\$
Mill and resurface parking lanes	\$	50	\$	50	\$
Patch parking lanes	NA	NA	\$	100	\$
Traffic signals at _____ Street	\$	90	\$	10	\$
Sidewalks	\$	50	\$	50	\$
New highway lighting	NA	NA	\$	100	\$
Relocate water main at _____ Street	NA	NA	\$	100	\$
Sub Total	\$		\$		\$
P&C Engineering 15%	\$		\$		\$
Right of way	\$	100	NA	NA	\$
Total	\$		\$		\$

Chapter 11 - PHASE I STUDIES

11-2.08

5. Sidewalks and Pedestrians. See Chapter 17 for information on pedestrian accommodations and Chapter 48 for warrants and the design of sidewalks within the roadway cross section. Also, see Chapter 39 for sidewalks or bikeways on bridges.

Describe the reasons for providing (or not providing) sidewalks and the coordination needed with local governmental units. See Chapter 58 for additional discussion on sidewalks and ADA compliance. The Phase I report must discuss any requests and the justification for deviations from the participation policies for sidewalks as discussed in Chapter 5 on Local Agency Agreements.

Chapter 14 - INTERSECTION DESIGN STUDIES

14-3 DATA REQUIRED FOR INTERSECTION DESIGN STUDIES

Document the following data in the IDS:

1. Elements Controlling Design.
 - pedestrian and bicycle usage at intersection.
2. General Notes. Include the following information in the general notes on Sheet No. 1:
 - j. Bicycle Route. Note the existence of designated bicycle routes through the intersection.
4. Traffic Data. Provide the following traffic data on Sheet No 1:
 - d. Pedestrians. Where pedestrian control signal heads are proposed, provide a pedestrian count.

[A caution: all of these provide a good snapshot of existing conditions. However, if the existing intersection design is poor for bikes and pedestrians, then this approach alone misses much of the latent demand. An intersection project is a chance to improve these conditions.]

Chapter 17 does a good job of examining demand based on land use, both at present and up to 5 years after project completion. This approach would be beneficial here and in other sections, including 46-1.05b, 48-2.04 #7, etc.]

Chapter 31 – BASIC DESIGN CONTROLS

31-4.04 Level of Service

Level of service (LOS) describes a qualitative measure of operational conditions within a traffic stream as perceived by motorists. A designated LOS is described in terms of average travel speed, density, traffic interruptions, comfort, convenience, and safety.

[We suggest mentioning the Bicycle Level of Service and Pedestrian Level of Service models both here and in Figure 31-4B. The BLOS especially has gained increasing acceptance nationally, and is even used in IDOT's bicycle maps and by CATS. Both are measures of the perceived comfort level of users as a function of roadway geometry and traffic conditions. BLOS is a measure of cyclist comfort on a particular roadway. BLOS of "C" can be considered a good target level for experienced cyclists, "B" for more casual users. PLOS is a measure of perceived comfort of pedestrians along the road. In some ways, it could be extrapolated to less experienced, off-road bicyclists. LIB maintains an on-line calculator (and usage guidance) for these measures, and we'd be glad to make this resource available to IDOT.]

Chapter 36 – INTERSECTIONS

36-1.08. *However, do not indiscriminately apply turning radii improvements to urban intersections.* Frequently, in urban areas there are heavy pedestrian volumes and shallow setbacks for buildings. Only propose turning radii improvements after a determination that the existing sidewalk width and adequate pedestrian capacity can be maintained.

7. Pedestrians. Where pedestrians are required to cross wide intersections, raised-curb center islands of sufficient size and width can provide a refuge area for pedestrians.

36-1.09 Pedestrians and Bicyclists

Safe and convenient movement of pedestrians and bicyclists through the intersection needs to be considered in the design of an intersection. However, this often causes conflicting objectives in the overall design of an intersection. Wider intersection designs to accommodate the design vehicle significantly increase the crossing distance for pedestrians. At signalized intersections, longer crossing times and conflicts with turning vehicles can significantly affect the overall capacity of the intersection. To reduce these problems, the geometric layout of the intersection may need to be revised, **refuge islands included within the intersection**, special turn lanes added for bicyclists, or other factors included in the design.

36-2.01(e) Pedestrian Considerations

The larger the right-turning radius, the farther pedestrians must walk across the street. This is especially important to persons with disabilities. Therefore, the designer must consider the number and type of pedestrians using an intersection when determining the edge of pavement or curb line design. **This may lead to a decision to design a right-turn corner island (small or intermediate) for use as a pedestrian refuge.**

36-2.02 Corner Islands

In general, the use of corner islands is discouraged. However at some intersections, it may be desirable to provide a directional or corner island to direct drivers. This may be especially advantageous where a tractor/semi-trailer is used as the design vehicle and/or at oblique angle crossing intersections. The corner island may also be used for locating traffic control devices.

Corner islands may also function as refuge islands to aid and protect pedestrians who cross a wide roadway. Corner islands may be required for pedestrians where complex signal phasing is used, and they may permit the use of two-stage crossings. This may enhance traffic signal efficiency by allowing a reduction in the time allocated for pedestrian movements.

[We ask IDOT to take another look at this opening statement. Corner islands can be very beneficial to pedestrians and those cyclists biking on sidewalks or trails along the road. Particularly at multi-lane suburban intersections with large radii for faster turning speeds, right-turning motorists have become increasingly unlikely to yield to non-motorized users crossing the street. In my opinion, it has almost become safer to cross mid-block – with only two car movements to monitor – than at signalized intersections with multiple (and unyielding) turning motions! (A good college research topic?) Corner islands greatly help this situation.]

...

36-4.02(b) Raised-Curb Islands

Raised-curb islands are at least 4 in (100 mm) high and are appropriate:

- on low-speed highways where the primary function is to provide positive separation for opposing traffic movements;
- at locations requiring positive delineation of vehicular paths, such as where a major route turns or at intersections with unusual geometry.
- where the island is intended to prohibit or prevent traffic movements (e.g., wrong-way movements or to manage access within the intersection);
- where a primary or secondary island function is to provide a location for traffic signals, signs, or other fixed objects; and/or
- where a primary function of the island is to provide a pedestrian refuge.

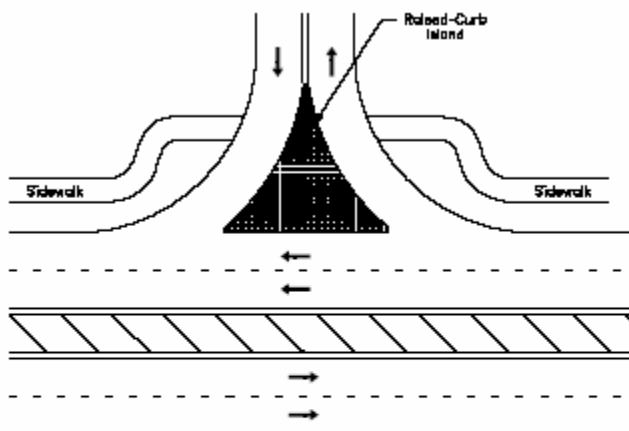
Chapter 46 – STRATEGIC REGIONAL ARTERIALS (New Construction/Reconstruction)

46-1.05 SRA Planning

46-1.05(a) Objectives

Development of comprehensive, long-range plans for a SRA network is necessary in order to implement a SRA system. These plans will identify both short-range and long-range improvements for each of the SRA routes. The following objectives may be used as a guide in the planning process:

...□ Accommodate necessary bicycle and pedestrian travel on or near the SRA route corridors.



Note: Where ROW is restricted, favor ingress maneuvers over egress maneuvers.

DRIVEWAY CHANNELIZATION
(Right-In and Right-Out Only)

Figure 46-2C

[The sidewalk in this diagram was designed poorly. The sidewalk should cross more closely to the street, for two reasons: 1) "right-outs" exiting the driveway into the road usually do not stop until they are near the road, even when the stop line is far back due to the sidewalk placement; 2) more of the island's width can be used as a refuge to isolate the turning motions that must be monitored. Also – some type of visual delineation is needed at the two non-motorized crossings here. Painted crosswalks are a possibility, but using color contrast in some way (different colored cement) would reduce maintenance needs.]

46-2 URBAN SRA ROUTES

Where it is desirable to accommodate bicycle demand and ROW is not restricted, an additional width may be added to each direction of the traveled way for bicycles.

DESIRABLE URBAN SRA CROSS SECTION
(With HOV/Bus Lanes)

Figure 46-2B

Cross Section Sections	Median Width	Flush/TWLT	34-3.03	11', 12', 14' (3)
	Parking Lane Width		48-2.05	Des.: 10', Min.: 8' (4)
	Bicycle Lane Width (Shared)		46-2.12	Min.: 13' Outside Lane
	Outside Curb Type and Width		34-2.04	B-6.24 CC&G

GEOMETRIC DESIGN CRITERIA FOR URBAN STRATEGIC REGIONAL ARTERIALS (SRA)

(New Construction/Reconstruction)

Figure 46-2E (US Customary)

[13' on an SRA is only adequate (and perhaps the only option) in a truly constrained, tight urban location with lower speeds. In typical suburban areas of 45mph speed limits, it's very inadequate, as described earlier.]

46-2.04 Intersections

2. Turning Radii. Insufficient turning radii for trucks can significantly affect capacity at an intersection. Small radii may require large trucks to slow down to maneuver through the turn, encroach in opposing lanes, or encroach onto the curb. Design the curb radii to meet the expected design vehicle. Intersection design vehicles are discussed in Section

46-2.12 Pedestrians and Bicyclists

Safe movement and accessibility are key issues for bicyclists and pedestrians. Urban SRA corridors are likely to experience bicyclists and a high volume of pedestrians, which may significantly impact the capacity and operations of the SRA route. One advantage of urban routes is that there typically are close parallel routes that may be considered for bicycle and pedestrian routes. *[This is true, as long as there is still access to businesses and destinations on the SRA, and the parallel route is truly close, without too many stops and with decent crossings of busy cross roads.]*

Identify these parallel facilities as bicycle routes so that the SRA routes can be reserved for vehicular traffic. At major obstacles (e.g., river crossings, canals, railroad bridges, limited access facilities), ensure that adequate provisions are available so that pedestrians and bicyclists have access across these barriers. Chapter 17 provides additional information for bicycle and pedestrian facilities. Chapter 58 provides information on disabled accessibility requirements.

46-3 SUBURBAN SRA ROUTES

46-3.04 Intersections

2. Turning Radii. Insufficient turning radii for trucks can significantly affect capacity at an intersection. Small radii may require large trucks to slow down to maneuver through the turn, to encroach into opposing lanes, or encroach onto the curb. Design the curb radii to meet the expected design vehicle, typically a WB-50 (WB-15). Review turning radii improvements for their impacts on pedestrians and adjacent development. Design vehicles are discussed in Section 36-1.08.

46-3.13 Pedestrians and Bicyclists

On suburban SRA routes, more options are available for accommodating pedestrian and bicycle access than in urban areas. *For example, although right-of-way availability is still a critical issue, dense development immediately adjacent to the roadway is not as common an occurrence as in urban areas. Provisions for bicyclists and pedestrians may be accommodated within the SRA right-of-way itself.* In suburban situations, alternative parallel routes may not always be available.

Access across major obstacles (e.g., river crossings, railroads, limited access facilities) or barriers will be accommodated by the SRA if alternative access is not feasible. The choice of how to provide access within the SRA corridor is determined on a case-by-case basis. Under all situations, the goal is to provide a continuous system of bicycle and pedestrian routes.

Chapter 17 provides guidance on the design of bicycle and pedestrian facilities. Chapter 58 provides information on disabled accessibility requirements.

46-4 RURAL SRA ROUTES

46-4.11 Pedestrians and Bicyclists

The criterion for pedestrians and bicyclists presented in Section 46-3.13 is also applicable for rural SRA routes.

Cross Section Sections	*Travelled Way Width		34-2.01	Initial: 2@ 24' (2) Recommended: 2@ 36'	
	*Shoulder Width	Right	Total Width	34-2.02	10'
			Paved		10'
		Left	Total Width		6' (3)
			Paved		4'
	Auxiliary Lanes	Lane Width		34-2.03	Single Left & Right: 12'
		Shoulder Width			4' (Paved)
		Depressed			Minimum: 50'
	Median Width	Flush (Concrete Barrier)		34-3	22' (4)
		TWLTL			N/A
					N/A
	Parking Lane Width			48-2.05	N/A
	Bicycle Lane Width			46-4.11	Use 10' Paved Shoulder
	Cross Slope	*Travel Lane		34-2.01	3/16"/ft for Lanes Adjacent to Crown (5)
		Shoulder		34-2.02	1/2"/ft
Sidewalk Width			58-1.06	5' Adjacent to Frontage Road with 5' Buffer Strip	
Clear Zone			38-3	(6)	

**GEOMETRIC DESIGN CRITERIA FOR RURAL STRATEGIC REGIONAL ARTERIALS (SRA)
(New Construction/Reconstruction)
(US Customary)**

Figure 46-4C

Chapter 48 – URBAN HIGHWAYS AND STREETS (New Construction/Reconstruction)

48-2.03 Typical Sections

Figures 48-2A through 48-2H present the typical cross sections for the various urban facilities. For a typical six-lane urban arterial with a raised-curb median, see Figure 34-3B. **Give consideration** to safe accommodation of pedestrians and bicyclists during the development of the project. Chapter 17 provides detailed guidelines for these issues. *["Give consideration to safe..." is rather weak. Based on the summaries of 17-1.04 and 17-4.01, how about "Plan for the safe..."]*

48-2.04 Sidewalks

Sidewalks are considered integral parts of the urban environment. In these areas, travelers frequently choose to make their trip on foot, and pedestrians desire to use a paved surface for the trip. When constructing sidewalks, the designer should consider the following:

1. Warrants. In general, **if pedestrian activity is anticipated, provide sidewalks along all curbed suburban and urban facilities.** Extend all sidewalks to logical termini. If sidewalks are not provided in the initial design, grading should be completed so that sidewalks can be added in the future. *[Better to have the sidewalk in the initial design – the grading is good, but it represents a lost opportunity.]* If sidewalks will not be installed, the designer should confer with local officials to ensure that sidewalks are not required or desired. New sidewalks or sidewalks replaced because of deterioration which meet these warrants, **will only be constructed if the local agency is willing to participate financially** and assume the maintenance responsibility for the sidewalk in accordance with the criteria in Chapter 5. *[See 5-5.02b for further discussion.]*

2. Widths. A typical sidewalk is 5 ft (1.5 m) wide. If no buffer area is provided, the sidewalk should be 7 ft (2.0 m) wide to accommodate any appurtenances which may be included in the sidewalk; see Item #4 below. High pedestrian volumes may warrant greater widths in business areas and school zones. In these cases, a detailed capacity analysis may be required to determine the sidewalk width. Use the *Highway Capacity Manual* for this analysis.

3. Buffer Areas. If the available right-of-way is sufficient, provide a buffer area between the back of curb and sidewalk. These areas provide space for snow storage, utilities, and allow a greater separation between vehicles and pedestrians. The buffer area should be 2 ft to 3 ft (600 mm to 900 mm) wide to be effective and wider if practical. Buffer areas may also be used for the placement of roadside appurtenances.

4. Appurtenances. Where a buffer area cannot be provided, the designer should consider the impact of roadside appurtenances within the sidewalk (e.g., mailboxes, fire hydrants, parking meters, utility poles). These elements may reduce the effective usable width because they interfere with pedestrian activity. Typically, a 1 ft (300 mm) minimum width is provided between the sidewalk and right-of-way line. Utility poles usually can be located behind the sidewalk in this area providing a clear sidewalk width of 5 ft (1.5 m).

- 5. CBD Areas. In central business districts, the entire area between the back of curb and the front of buildings is fully paved as a sidewalk.
- 6. Disabled Accessibility. Wherever a sidewalk is designated as an accessible route, sidewalk widths, cross slopes, longitudinal grades, curb ramps, etc., along public rights-of-way must meet the ADA criteria presented in Chapter 58.
- 7. Bridges. In general, if there is or expected to be pedestrian activity across a bridge, include sidewalks on both sides of the bridge. On long bridges, it may be more cost effective to provide a single sidewalk on one side. However, a safe crossing must be provided in advance of the bridge if there is **evidence of pedestrian activity** on both sides of the roadway. *[See comment for 14-3.]* See Chapter 39 for typical sections.

Design Element	Manual Section	Two-Way DHV 2900-2050 (1)	Two-Way DHV 2050-1250 (1)	Two-Way DHV < 1250 (1)
Highway Type	---	TWS-6	TWS-4	TWS-2
Design Forecast Year	31-4.02	20 Years	20 Years	20 Years
* Design Speed (2a)	48-2.01	30 mph – 45 mph	30 mph – 50 mph (2b)	30 mph – 40 mph
Access Control	35-1	Consider Managed Access	Consider Managed Access	Consider Managed Access
Level of Service	31-4.04	C	C	C
On-Street Parking (3)	48-2.05	Not Recommended	Not Recommended	Not Recommended
* Surface Width	Without Parking	2@ 38' e-f	2@ 26' e-f	30' f-f
	With Parking - 1 Side (4)	1 @38' e-f 1 @46' e-f	1 @ 26' e-f 1 @ 34' e-f	36' f-f
	With Parking - 2 Sides (4)	2 @ 46' e-f	2 @ 34' e-f	44' f-f
Auxiliary Lanes	Lane Width	Single Left & Right: 12', Min. 11' m Dual Lefts: 24', Min.: 22'		
	Curb Type and Width	B-6.12 or B-6.24 CC&G (5)		
Bicycle Lane Width (Shared) (6)	Chp. 17	Min.: 13'	Min.: 13'	Min.: 13'

**GEOMETRIC DESIGN CRITERIA FOR SUBURBAN/URBAN TWO-WAY ARTERIALS
(New Construction/Reconstruction)
(US Customary)**

Figure 48-6A

(6) **Bicycle Lane Width.** Width of a shared bicycle lane is dependent on the posted speed of the street. For a posted speed of 45 mph, use a 14 ft (4.2 m) width, and for posted speeds less than 45 mph, use a 13 ft (4.0 m) width. *[Subtle point: it might be better to call this "Bicycle Shared Lane Width". See previous comments about 13' widths.]*

Chapter 57 – TRAFFIC CONTROL DEVICES

57-4.07(f) Bicycle Detectors

The two most common devices for bicycle detection include:

1. Pedestrian Push-Button Detector. With the push-button detector, the bicyclist must stop and push the detector button for the controller to record the call. **This may require the bicyclist to leave the roadway and proceed on the sidewalk to push the detector button.**

[This is generally not an appropriate situation. Detector buttons are fine if placed conveniently, but often this is not the case.]

2. Inductive-Loop Detector. The inductive-loop detector (e.g., quadrupole) can detect the bicycle without the bicyclist's interaction. To ensure detection, the bicyclist should be guided directly over the loop wire. A problem with using inductive loop(s) for bicycle detection is that they require a significant amount of metal to be activated. Today's bicycle designs tend to use a substantial amount of non-metallic, man-made materials to increase their strength and reduce their weight. This substantially has reduced the amount of material that can be detected in bicycles.

[Not found in the BDE Manual was the handling of pedestrian signal activation and crosswalks in the absence of cross-street sidewalks leading to the intersection. Our understanding is that these intersection features would not be added in this situation. However, this seems to be a "Catch-22" scenario, since local agencies may not build a sidewalk up to a state road intersection without crossing features.]

[Also, AASHTO has recently released its first pedestrian design guide. We recommend that the existing BDE ped policies, which are fairly minimal, be revised incorporating highlights from this new resource.]

[Finally, some other states have contracted out the revision of their bike/ped design policies. The suggestions detailed here are not as comprehensive as a full policy analysis might be. Particularly with IDOT staff shortages, this may be an option to strongly consider.]