


ALL AGES AND ABILITIES BICYCLE FACILITIES

A NETWORK THAT WORKS FOR EVERYONE

OUTLINE

- The “Design Cyclist”
- Historic Cyclist Typologies
- All Ages and Abilities Considerations
- Selecting the Right All Ages and Abilities Facility
- Questions

What kind of cyclist do we design for?

- Middle-aged man
- Wearing a helmet
- Nice (expensive) bike
- Bright clothing & lights
- Maybe does long races
- Performance gear
- No bag or lock
- In nice weather

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- Fun-loving mom & child
- Wearing a helmet(?)
- Wider trike w/ trailer
- Everyday clothing
- Has a bike lock

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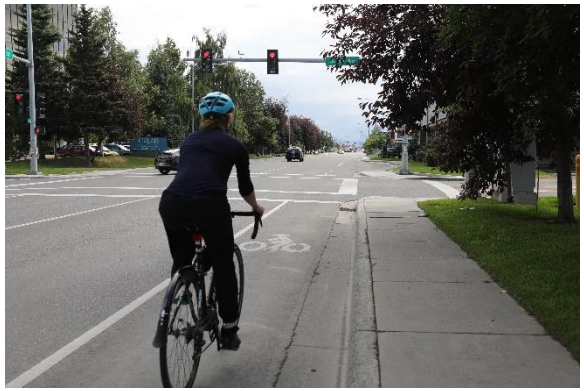
TYPES OF CYCLISTS PER FHWA-RD-92-073

- Group A—Advanced Bicyclists: These are experienced riders who can operate under most traffic conditions. They comprise the majority of the current users of collector and arterial streets[.]
  - Riding in roadway or shoulder
- Group B—Basic Bicyclists: These are casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Some will develop greater skills and progress to the advanced level, but there will always be many millions of basic bicyclists.
  - Well-defined separation of bicycles and motor vehicles on arterial and collector streets (bike lanes or shoulders) or separate bike paths.
- Group C—Children: These are pre-teen riders whose roadway use is initially monitored by parents. Eventually they are accorded independent access to the system.
  - Access to key destinations surrounding residential areas, including schools, recreation facilities, shopping, or other residential areas.
  - Residential streets with low motor vehicle speed limits and volumes.
  - Well-defined separation of bicycles and motor vehicles on arterial and collector streets or separate bike paths.

TYPES OF CYCLISTS PER FHWA-RD-92-073

"Group A Cyclist"

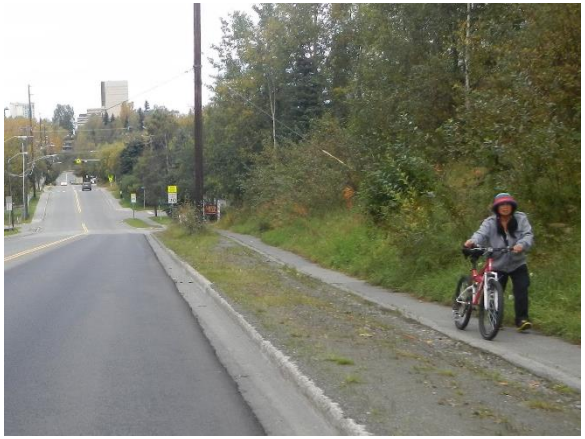
"Group B/C Cyclist"

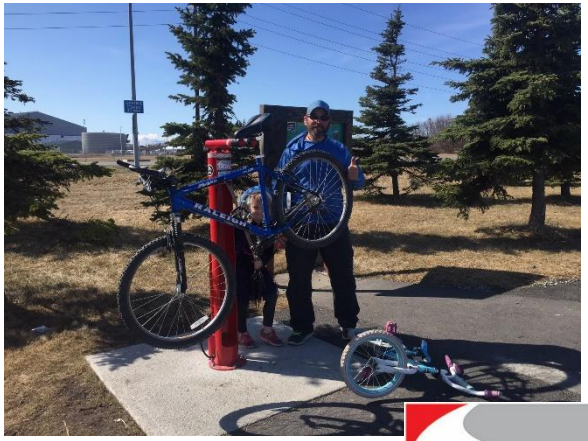


PROBLEMS WITH FHWA-RD-92-073

The classification:

- Is based solely on skill and confidence, not preference
- Assumes that the majority of transportation riders fit into “Group A”
- Assumes that bike lanes or shoulders are suitable for every adult cyclist
- Doesn’t consider how higher stress facilities discourage cycling for transportation
- Assumes that children only need to be accommodated near residential areas





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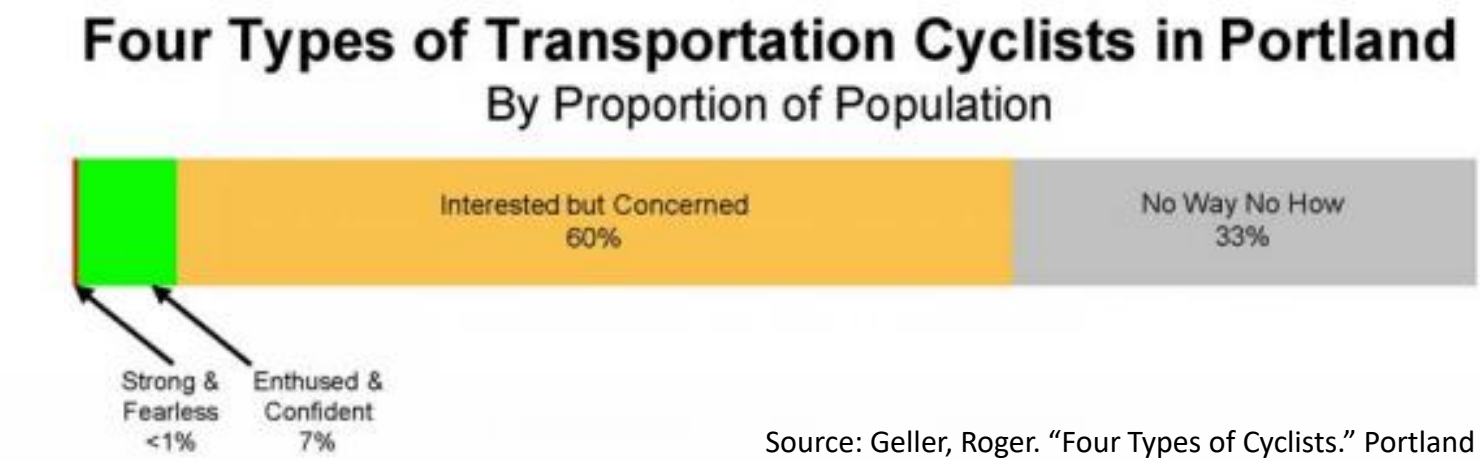
MAYBE IT'S MORE COMPLICATED THAN THAT



Source: Geller, Roger. "Four Types of Cyclists." Portland Office of Transportation, Portland, OR: 2012.

MAYBE IT'S MORE COMPLICATED THAN THAT

WORKING PAPER

Table 2: Distribution of Survey Respondents by Cyclist Type

Type	Description	City of Portland	Rest of region	All	Geller's estimate for City
Strong & Fearless	Very comfortable without bike lanes	6%	2%	4%	<1%
Enthused & Confident	Very comfortable with bike lanes	9%	9%	9%	7%
Interested but Concerned	Not very comfortable, interested in biking more Not very comfortable, currently cycling for transportation but not interested in biking more	60%	53%	56%	60%
No Way No How	Physically unable Very uncomfortable on paths Not very comfortable, not interested, not currently cycling for transportation	25%	37%	31%	33%
n (weighted)		436	479	915	

Note: Weighted data, may not total 100% due to rounding.

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OTREC PSU

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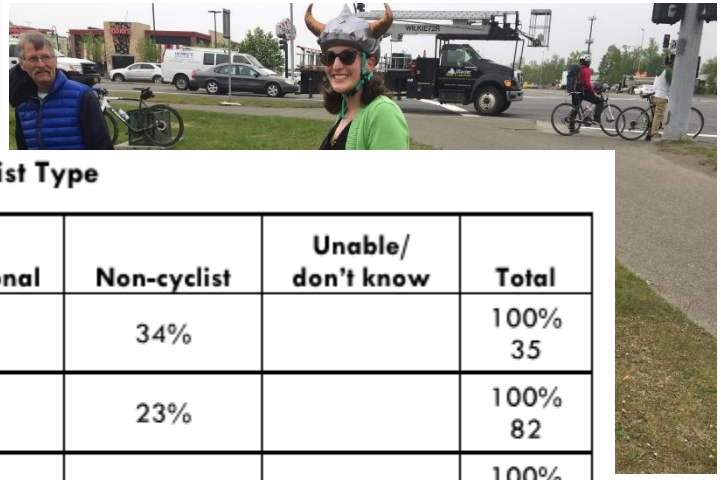
MAYBE IT'S MORE COMPLICATED THAN THAT



WORKING PAPER

Table 3: General Cycling Behavior, by Cyclist Type

Type	Utilitarian	Recreational	Non-cyclist	Unable/ don't know	Total
Strong & Fearless	43%	23%	34%		100% 35
Enthused & Confident	46%	31%	23%		100% 82
Interested but Concerned	43%	30%	28%		100% 511
No Way No How		15%	46%	40%	100% 287

Note: Weighted data, may not total 100% due to rounding.

August 10, 2012

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- Women are most likely to be in the No Way No How category or non-cyclists in the Enthused and Confident and Interested but Concerned categories. The barriers preventing them from cycling for transportation must be better understood if cycling rates are to increase significantly. Other research indicates that common barriers include concerns about traffic, different attitudes towards bicycling, and complex travel patterns, including transporting passengers (e.g. children and older parents) (11).
- Older adults (over 55) are also more likely to be in the No Way No How category or non-cyclists in the Enthused and Confident and Interested but Concerned categories. The large share in the No Way No How category is largely due to respondents indicating a physical inability to ride a bicycle. Non-traditional bicycle technologies, including electric-assist bicycles (e-bikes) and adult tricycles, might overcome this barrier for some older adults.
- The Interested but Concerned adults do represent the largest potential market for increasing cycling for transportation. Bicycle infrastructure that increases their physical separation from motor vehicles, such as cycle tracks, increases their level of comfort significantly. This would seem a necessary condition to increasing their levels of cycling for transportation.
- General concern about the amount of traffic and traffic speeds in neighborhoods, along with a lack of bike lanes and destinations nearby, appears to be preventing Interested but Concerned adults from bicycling either for transportation or recreation. Besides bicycle-specific infrastructure, traffic speed controls, traffic calming, and planning that promotes a mix of land uses could help overcome these barriers.

Source: Dill, Jennifer & McNeil, Nathan. “Four Types of Cyclists? Testing a Typology to Better Understand Bicycling Behavior and Potential.” Portland State University, Portland, OR: 2012.

HOW DOES THE DESIGN USER AFFECT WHAT'S BUILT?

Routes that:

- Prioritize speed, avoid interruptions
- Prioritize recreation to and from home
- Allow longer distances, hills, obstacles
- May include greater risks

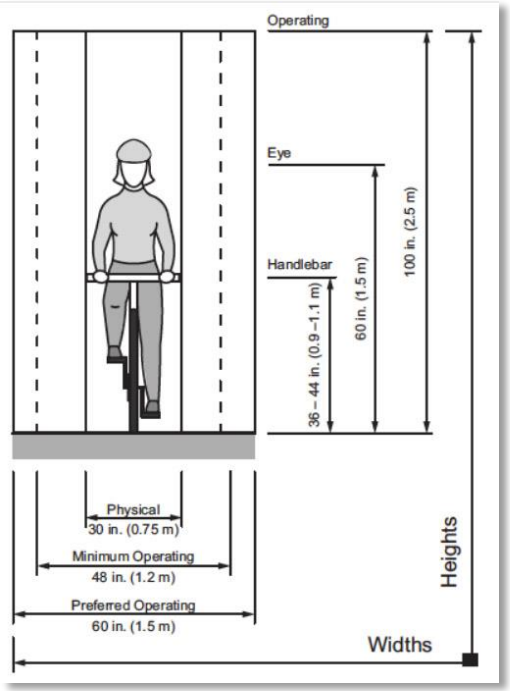
Routes that:

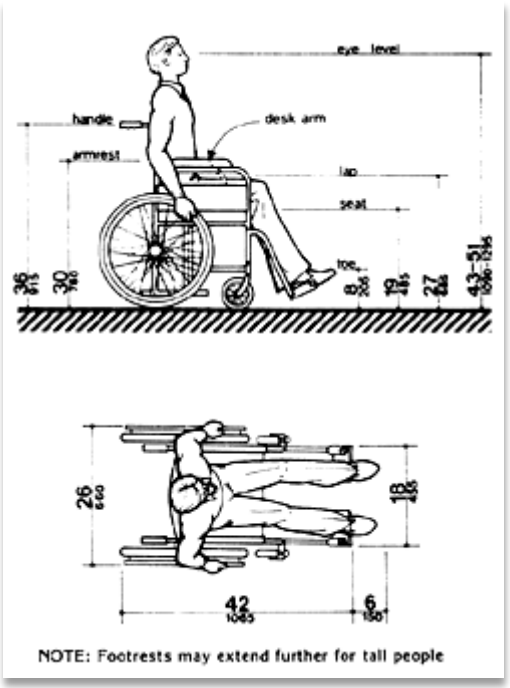
- Prioritize safety and comfort
- Prioritize trips other than recreation, connections to destinations in town
- Accommodate wider and longer bikes
- Resolve obstacles or missing links

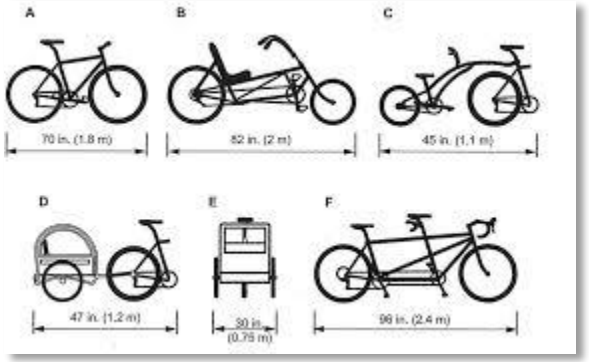
ALL AGES AND ABILITIES CONSIDERATIONS

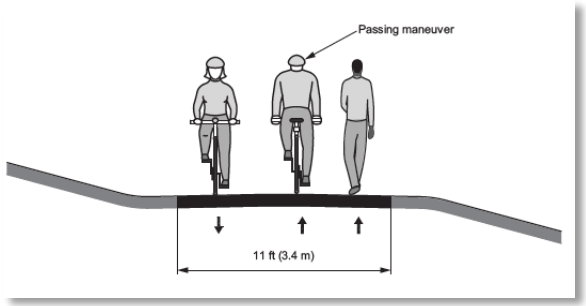
- Operational Dimensions
- Perception and Reaction Time
- Physical Ability
- Decision-making Ability
- Risk Perception/Tolerance
- Summer and Winter Usage
- Equity

OPERATIONAL DIMENSIONS









PERCEPTION AND REACTION TIME

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PHYSICAL ABILITY

DECISION-MAKING ABILITY

Pedalcyclists Killed/Injured in Traffic Crashes and Fatality/Injury Rates, by Age and Gender, 2015

Age (Years)	Male			Female			Total		
	Injured	Population (thousands)	Injury Rate*	Injured	Population (thousands)	Injury Rate*	Injured	Population (thousands)	Injury Rate*
<5	**	10,178	**	**	9,730	**	**	19,907	**
5–9	1,000	10,459	102	**	10,028	**	1,000	20,487	57
10–14	4,000	10,520	363	**	10,102	**	4,000	20,622	201
Children (≤14)	5000	31,157	160	**	29,860	**	5000	61,016	82
15–19	4,000	10,798	413	1,000	10,311	92	5,000	21,109	256
20–24	3,000	11,668	258	2,000	11,071	173	5,000	22,739	217
25–29	4,000	11,409	354	1,000	11,052	63	5,000	22,462	211
30–34	2,000	10,890	145	1,000	10,786	123	3,000	21,676	134
35–39	3,000	10,173	311	**	10,201	**	3,000	20,375	171
40–44	2,000	10,030	227	**	10,185	**	3,000	20,215	136
45–49	3,000	10,335	300	1,000	10,519	50	4,000	20,854	174
50–54	3,000	10,964	254	1,000	11,370	51	3,000	22,334	151
55–59	3,000	10,598	274	1,000	11,210	53	3,000	21,808	160
60–64	2,000	9,117	233	**	9,953	**	2,000	19,070	131
65–69	1,000	7,596	111	**	8,471	**	1,000	16,067	74
70–74	1,000	5,296	101	**	6,187	**	1,000	11,483	56
75–79	**	3,611	**	**	4,513	**	**	8,124	**
80+	**	4,587	**	**	7,500	**	**	12,087	**
People ≥65	2000	21,090	95	**	26,671	**	2000	47,761	42
Total	**36,000**	**158,229**	**229**	**9,000**	**163,190**	**54**	**45,000**	**321,419**	**140**

Sources: 2015 ARF. NASS GES 2015. Bureau of the Census population projections.
*Rate per *million* population. Population estimates from Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties and Puerto Rico Commonwealth and Municipios: April 1, 2010 to July 1, 2015; Source: U.S. Census Bureau, Population Division; Release Date: June 2016. Retrieved from http://factfinder2.census.gov/bkmk/table/1.0/en/PEP/2015/PEPSR5H.
**Less than 500 injured; injury rate not shown. †One pedalcyclist of unknown gender is not included.
Note: Injured totals may not equal sum of components due to independent rounding.

RISK PERCEPTION/TOLERANCE

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SUMMER AND WINTER USAGE

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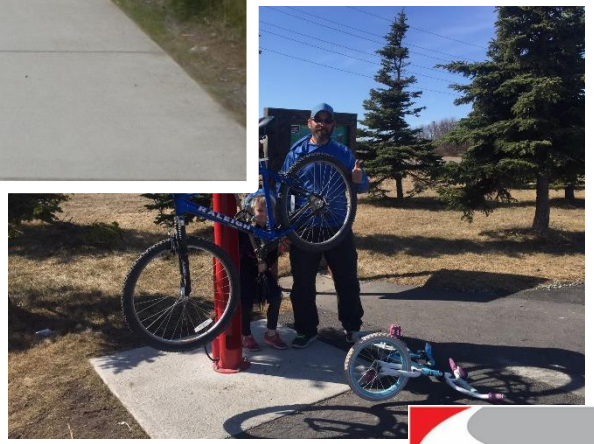

ITE Student Chapter – April 11th, 2019

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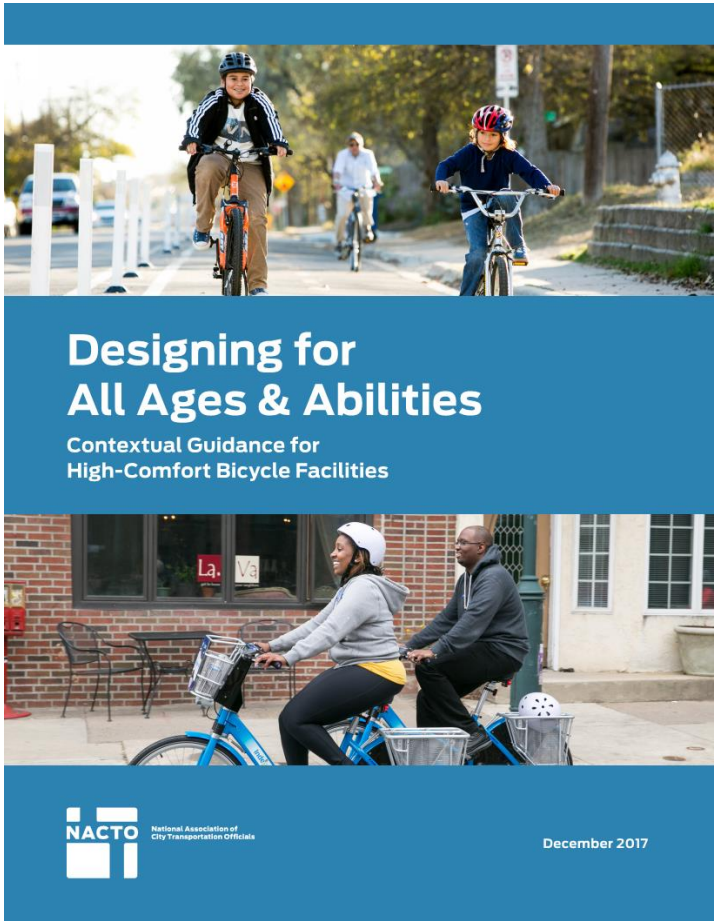
SELECTING THE RIGHT TYPE OF FACILITY



- Vehicle Speeds
- Vehicle Volumes
- Lane Configuration
- Curbside Activity
- Pedestrian Volumes

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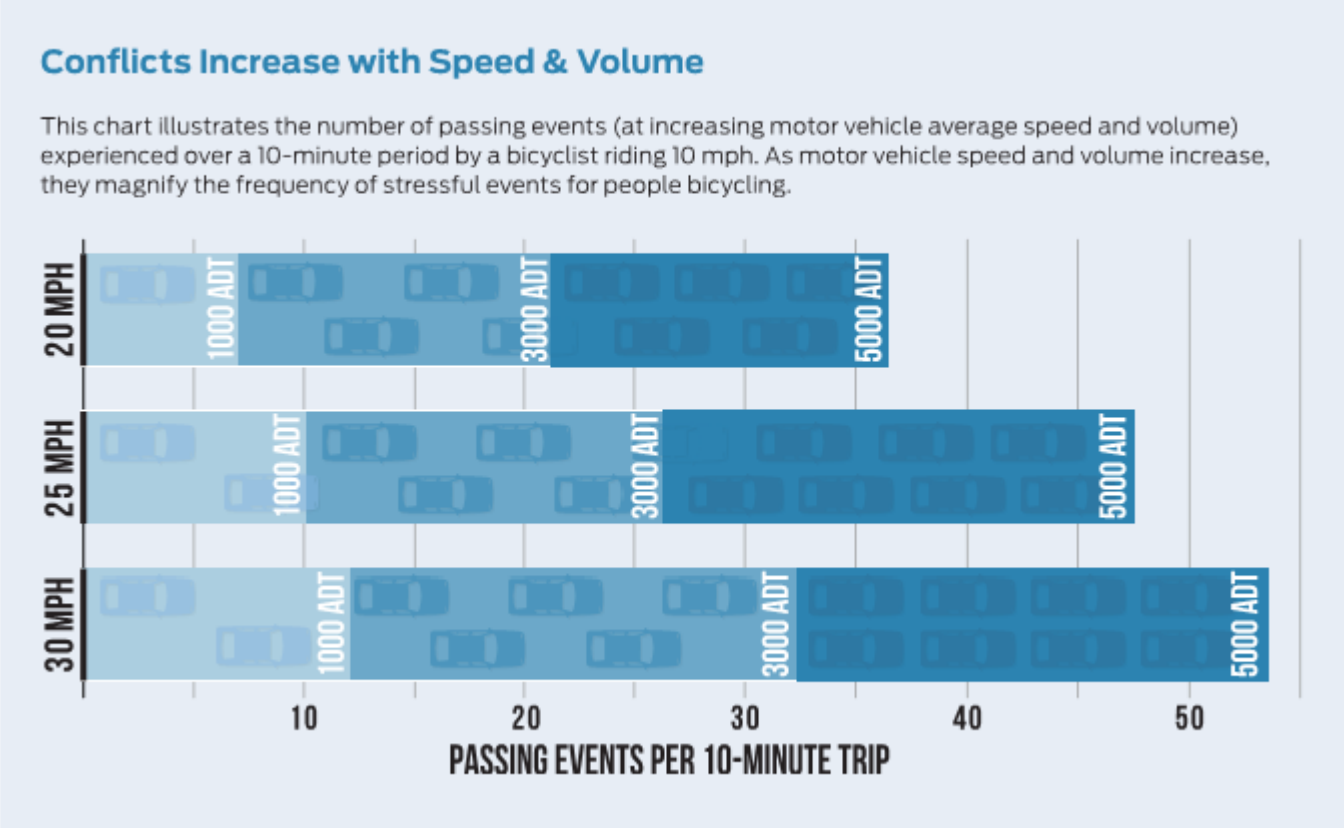
UNDERSTANDING STRESS ON CYCLISTS



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Contextual Guidance for Selecting All Ages & Abilities Bikeways

Roadway Context				All Ages & Abilities Bicycle Facility
Target Motor Vehicle Speed*	Target Max. Motor Vehicle Volume (ADT)	Motor Vehicle Lanes	Key Operational Considerations	
Any		*Any*	*Any of the following:* high curbside activity, frequent buses, motor vehicle congestion, or turning conflicts‡	**Protected Bicycle Lane**
< 10 mph	Less relevant	No centerline, or single lane one-way	Pedestrians share the roadway	**Shared Street**
≤ 20 mph	≤ 1,000–2,000		< 50 motor vehicles per hour in the peak direction at peak hour	**Bicycle Boulevard**
≤ 25 mph	≤ 500–1,500			
	≤ 1,500 – 3,000	Single lane each direction, or single lane one-way	Low curbside activity, or low congestion pressure	**Conventional or Buffered Bicycle Lane, or Protected Bicycle Lane**
	≤ 3,000 – 6,000			**Buffered or Protected Bicycle Lane**
	Greater than 6,000			**Protected Bicycle Lane**
	Any	Multiple lanes per direction		
Greater than 26 mph†	≤ 6,000	Single lane each direction	Low curbside activity, or low congestion pressure	**Protected Bicycle Lane, or Reduce Speed**
		Multiple lanes per direction		**Protected Bicycle Lane, or Reduce to Single Lane & Reduce Speed**
	Greater than 6,000	*Any*	*Any*	**Protected Bicycle Lane, or Bicycle Path**
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts		*Any*	High pedestrian volume	**Bike Path with Separate Walkway or Protected Bicycle Lane**
			Low pedestrian volume	**Shared-Use Path or Protected Bicycle Lane**

< 10 mph	Less relevant	No centerline, or single lane one-way	Pedestrians share the roadway	**Shared Street**
≤ 20 mph	≤ 1,000 – 2,000		< 50 motor vehicles per hour in the peak direction at peak hour	**Bicycle Boulevard**
	≤ 500 – 1,500			

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≤ 25 mph	≤ 1,500 – 3,000	Single lane each direction, or single lane one-way	Low curbside activity, or low congestion pressure	**Conventional or Buffered Bicycle Lane, or Protected Bicycle Lane**
	≤ 3,000 – 6,000			**Buffered or Protected Bicycle Lane**
	Greater than 6,000			**Protected Bicycle Lane**
	Any	Multiple lanes per direction		

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	Greater than 6,000	*Any*	*Any*	**Protected Bicycle Lane, or Bicycle Path**
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts	*Any*		High pedestrian volume	**Bike Path with Separate Walkway or Protected Bicycle Lane**
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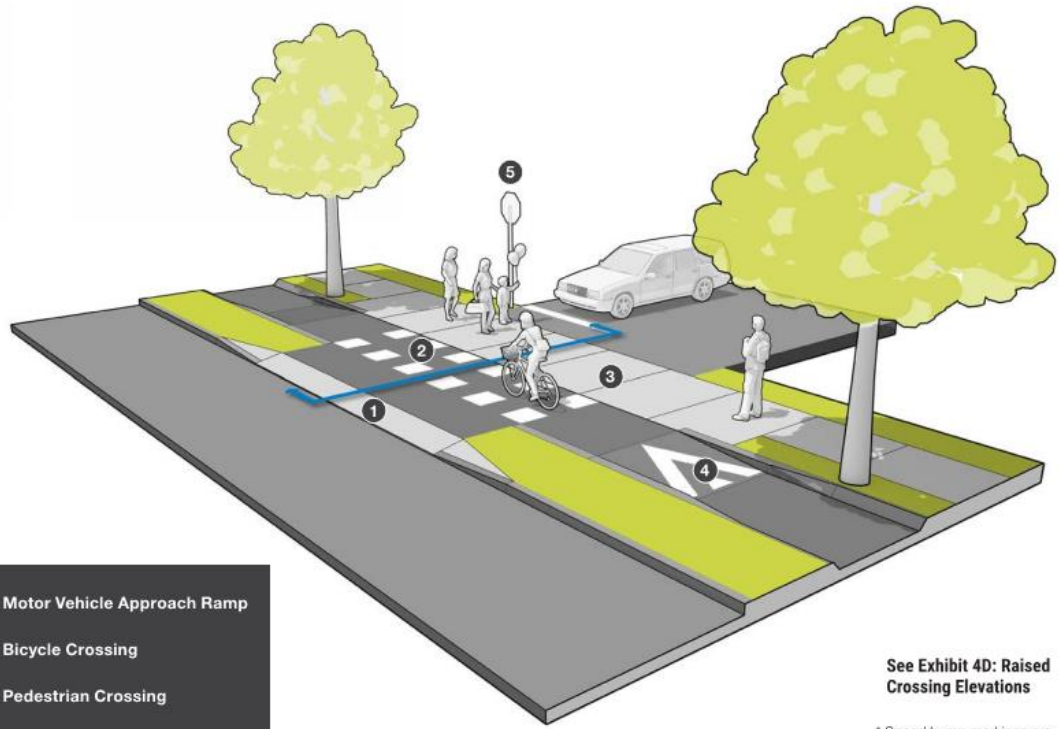

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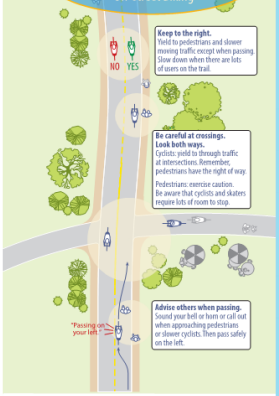
	≤ 3,000 – 6,000			**Buffered or Protected Bicycle Lane**
	Greater than 6,000			**Protected Bicycle Lane**
	Any	Multiple lanes per direction		
Greater than 26 mph†	≤ 6,000	Single lane each direction	Low curbside activity, or low congestion pressure	**Protected Bicycle Lane, or Reduce Speed**
		Multiple lanes per direction		**Protected Bicycle Lane, or Reduce to Single Lane & Reduce Speed**
	Greater than 6,000	*Any*	*Any*	**Protected Bicycle Lane, or Bicycle Path**
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts		*Any*	High pedestrian volume	**Bike Path with Separate Walkway or Protected Bicycle Lane**
			Low pedestrian volume	**Shared-Use Path or Protected Bicycle Lane**

HOW DO WE MAKE ANCHORAGE BETTER FOR ALL AGES AND ABILITIES OF CYCLISTS

- Stop classifying cyclists by ability, focus on eliminating pervasive obstacles for children, seniors, women, and low-income riders
- Champion protected bike lane pilot projects with bicycle detection (Aim higher than discontinuous, conventional bike lanes)
- Incorporate All Ages and Abilities considerations for bike lane and pathway width, driveway and side street crossings in all projects
- Stop focusing solely on vehicle capacity
- Convert oversized roads and lanes to add more protection for cyclists
- Prioritize bicycle network on lower speed, lower volume roads
- Connect existing All Ages and Ages and Abilities facilities to major destinations

ANCHORAGE

Sharing the Trail
Off-street Biking



Keep to the right.
Yield to pedestrians and slower moving traffic except when passing. Slow down when there are lots of users on the trail.

Be careful at crossings. Look both ways.
Cyclists: yield to through traffic at intersections. Remember, pedestrians have the right of way.
Pedestrians: exercise caution. Be aware that cyclists and skaters require lots of room to stop.

Advise others when passing.
Sound your bell or horn or call out when approaching pedestrians or slower cyclists. Then pass safely on the left.

MAY 18th 2018

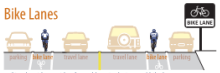
BIKE TO WORK
ANCHORAGE ALASKA

Types of Bikeways

Shoulder Bikeways

- Bicycles ride outside travel lane on paved shoulder.
- May share shoulder with pedestrians.
- Many shoulder bikeways have signs identifying them as a bike route and showing the direction and distance to destinations (e.g. the Loop, the lakefront).

Bike Lanes



- Bicycles ride outside of travel lane in designated bike lane.
- Special pavement markings and signs identify the lanes.

Shared Lanes / Bicycle Boulevards

- Whether marked or not cyclists may share the road if riding as a vehicle. Cars and bicycles share the lane.
- Markings and signs may also be used encourage cars to share the lane with bicyclists. Special pavement markings direct bicyclists to ride outside the "Door Zone" (see "Door Zone" panel).

Multi-use Trails

- Paved paths separated from the road for bicyclists, walkers, runners, and in-line skaters.
- All users stay on right side.

School
Bike Shop
Visitor Info
Bicycle FixIt Station

Bike Lane
Paved Shoulder
Bicycle Boulevard/ Shared Road

Bike Friendly On-Street Route
Bike Friendly Pathway

Unpaved Route
Multi-use Trail

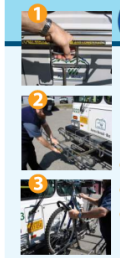
Area with Increased Bear Activity/Encounters

Legend

N

ALASKA BIKE AND PEDESTRIAN RESOURCES
http://akbikeandped.org/
A guide for Alaskan cyclists and pedestrians

PEOPLE MOVER Bike-to-Bus



All People Mover buses can hold three bikes. Bicycle racks are available on a first come first served basis.

- **Always approach the bike rack from the curb side.**
- **Be ready before the bus arrives**
- **Remove packs, accessories and water bottles from your bike before loading your bike. (If you're concerned about the safety of your bicycle, lock your bicycle's front wheel to your frame before the bus arrives.)**

1. Alert the bus operator. Lower the rack by squeezing the center handle.
2. Load bicycle and secure front tire with support arm. Board the bus and pay fare (no cost for the bicycle).
3. When exiting, alert the bus operator that you'll be removing your bicycle. Unload your bicycle. If no other bicycles remain, stow the rack against the bus in the upright position.

PeopleMover@muni.org

Bicycle FixIt Stations

All the tools necessary to perform basic bike repairs and maintenance.
- Change flat tires
- Adjust brakes and derailleurs
- Air pump

Bike Shops (with corresponding map numbers)

1. **Alaska Pablo's Bicycle Rental** (907) 272-1600
415 L Street
2. **Lifetime Adventures** 1 (907) 232-9219
440 L Street
3. **Downtown Bicycle Rental** (907) 279-5293
333 W 4th Avenue #206
4. **Speedway Cycles** (907) 222-1967
1231 W Northern Lights Blvd
5. **Play It Again Sports** (907) 278-7529
2636 Spenard Road
6. **REI** (907) 272-4565
1200 W Northern Lights Blvd.
7. **The Bicycle Shop** (907) 272-5219
1035 W Northern Lights Blvd.
8. **Off the Chain** (907) 258-6822
1406 W 33rd Avenue
9. **Trek Store of Anchorage** (907) 743-6000
530 E. Benson Blvd. Suite 9C
10. **Alaska eBike Store** (907) 232-1246
2229 Spenard Road
11. **RTR Cycles** (907) 563-2054
3110 E 42nd Avenue
12. **Webike Bicycle Repair** (907) 245-3669
8160 Fairwood Circle
13. **The Bicycle Shop** (907) 222-9953
1801 W Dimond Blvd.
14. **Play It Again Sports** (907) 272-7529
8840 Old Seward Hwy.
15. **Chain Reaction Cycles** (907) 336-0383
1148 Huffman Road
16. **Paramount Cycles** (907) 336-2453
1320 Huffman Park Drive
17. **Arctic Cycles** *(October - March)* (907) 351-8545
South Anchorage
18. **Powder Hound Ski Shop** (907) 783-2525
210 Arlberg Avenue Girdwood
19. **Daylodge Mountain Bike Hub** (907) 754-2283
Daylodge Girdwood
20. **Hotel Alyeska** (907) 754-1111
1000 Arlberg Dr. Girdwood

0 0.5 1 2 3 Miles

The Municipality of Anchorage publishes this map to help bicyclists navigate the streets and trails of Anchorage, Eagle River and Girdwood. Be aware that potential hazards and obstructions may exist on the routes shown, and the Municipality of Anchorage in no way warrants the safety or fitness of the suggested routes.

Look for roads with bicycle lanes, shoulders or paths, or less busy streets. Evaluate routes based on your individual bicycling ability and experience.

To improve your bicycling skills and safety, go to www.bikeleague.org/ridesmart to find local classes and instructors qualified by the League of American Bicyclists.

Anchorage BIKE to WORK Day
MAY 18th 2018

www.muni.org/biketowork
Download this map to your phone!

Sharing the Road
Biking on Streets

Ride in a straight line.
Avoid weaving between parked cars. Ride in a straight line at least 4 feet away from parked cars to avoid the **Door Zone** (see below).

Obey all traffic regulations.
Riding predictably and following the law are the keys to safe bicycling. Knowing and following the rules help all road users properly anticipate and react to each other.

Don't ride on the sidewalks downtown.
Anchorage law prohibits riding sidewalks in the Central Business District. Remember: Wheels yield to heels.

When necessary, use entire travel lane.
Move toward the center when the lane is too narrow for motorists to pass safely or when you're moving at the same speed as traffic.

NEVER Ride Against Traffic!

Never ride against traffic.
Riding against traffic is dangerous and illegal. Motorists and pedestrians are not looking for cyclists riding the wrong way down a street or sidewalk.

Watch for the 'Right Hook'!
Where drivers are turning right but looking left! **ALWAYS** make eye-contact & yield if you're unsure that you have been seen.

ALWAYS Watch for the 'Right Hook!'

To cross an intersection, use the lane farthest to the right that points to where you are going.
Follow lane markings to cross an intersection. If you can't change lanes to turn left, ride across the street to the other side and align your bike with traffic.

Exercise caution when merging with vehicles and use hand signals to indicate your direction.

The Door Zone
is the 4-foot area along the side of a parked car where an opening door can hit and seriously injure a cyclist. When riding in a bike lane, ride on the left side of the lane – at least 4 feet from any parked cars.

SHARE THE ROAD

This sign indicates a break in the bike lane where cyclists share the road with vehicles.

Be Aware of traffic pulling out as well as behind you, so you'll know whether you have enough room if you must swerve suddenly out of the **Door Zone**.
A mirror is a great aid to help see traffic behind you.

IT'S NOT JUST ABOUT CYCLISTS

- Providing more width for cyclists on shared facilities improves accessibility
- Separating bicycles when there is high pedestrian demand prevents conflicts
- Slowing down turning vehicles and increasing separation from roadway improves quality of pedestrian environment

QUESTIONS?

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