NOAH 2024 Workshop - Bioptic Driving: Methods for Screening, Training & Licensing Candidates

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Pre-Driver Readiness

Objectives

- Define and provide major types of pre-driver readiness skills
- Basic components of such skills
- Sampling of baseline determination of pre-driver readiness before adaptive driver's training

Pre-driver readiness?

Pre-driver readiness?

Defined simply as - knowledge and travel skills needed to transition safely, confidently and effectively from: pedestrian to active passenger-in-car to motor vehicle operator

Common misconception

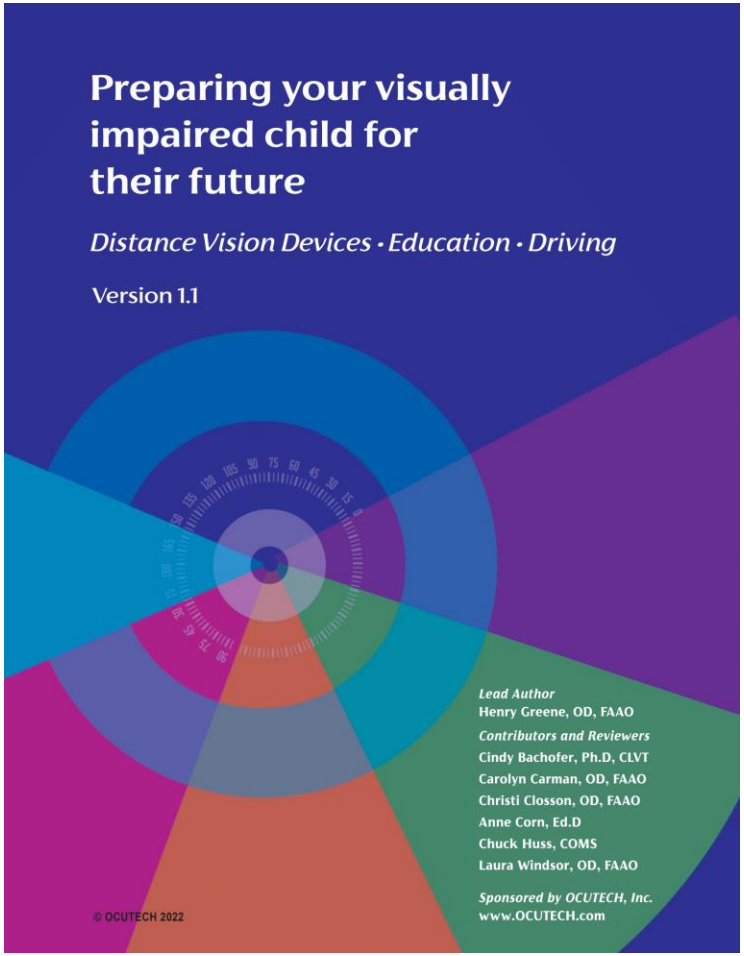
- Parents wait until their son or daughter, with a congenital visual impairment, reaches licensing age, before enrolling them in pre-driver readiness type of training.

In reality

- Can start in pre-school (indoors and outdoors) and extends through a child's elementary years)
- Encouraging and teaching youth to use vision in a distance and intermediate mode using hand-held distance low vision aids.

Pediatric Telescope Initiative ‘22

- Provides suggestions to parents or teachers how to improve a child’s or student’s use of their distance vision
- **Sections**
  - Introduction: Dear Parent
  - What You Need to Know
  - **Part 1:** About monocular telescopes
  - **Part 2**: Encouraging your child to use a monocular telescope
  - **Part 3:** Learning to use a monocular telescope
  - **Part 4:** About bioptic telescopes
  - **Part 5**: Introducing your child to driving
  - Additional resources



Distance optical low vision aids

BENEFITS

- Distant detail (fine and gross)
- Distinct color
- Distant activity or action
- Distant configuration
- Extension of self to distant world

LIMITATIONS

- Limited field of view
- Nearness illusion
- Limits one's mobility
- Weight of the device
- Disorientation with magnified field of view movement

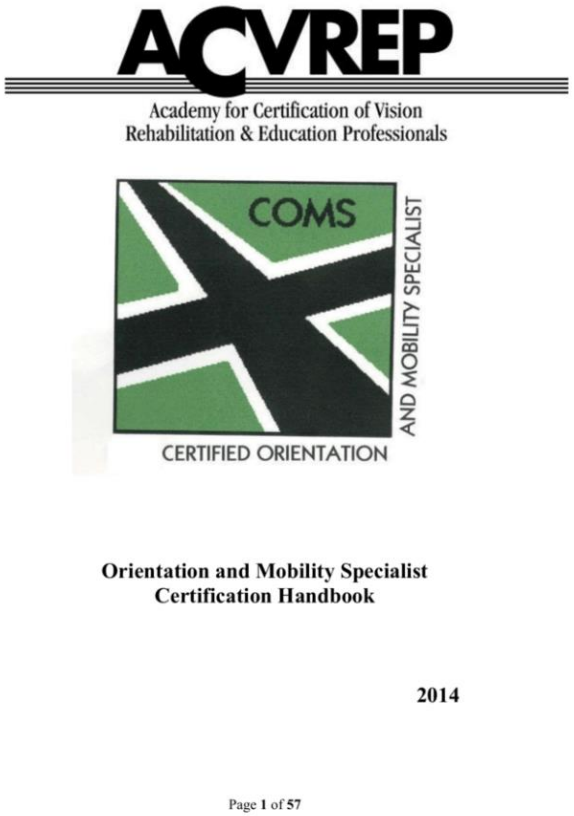
Two (2) basic types:

- Basic pedestrian (on-foot) related travel skills

- Advanced/active, right front seat passenger-in-car (PIC) travel skills

Basic pedestrian (on-foot) low vision orientation & mobility (O&M) programs should:

- Be conducted under the direction of a certified O&M Specialist (COMS)
- Starting in middle school through high school
- Initial interview, then screening conducted on foot, on a one-on-one basis



Emphasis of instruction:

- Residential through small metropolitan travel, if available
- Simple straight line, L & U-shaped, then around-the-block shaped routes of travel
- More complex multi-block, multi-directional routes of foot travel (rote & self-planned), including reverse and alternate routes

Emphasis of instruction (cont'd)

- Analyzing & crossing stop sign & traffic light-controlled intersections
- Transverse and longitudinal roadway pavement markings, regulatory & general warning signs
- Use of large print maps & global positioning systems (GPS)*
- Concepts of compass directions, directionality, laterality, position, block distance, street continuity, street marker and sun clues

- **Craig Phillips, COMS, cleep1700@att.net, TEL: (913) 645-8262**

Emphasis of instruction(cont'd)

- Distance optical low vision aids (hand-held monocular vs. head borne/bioptic lens systems)
- Ancillary distance optical and non-optical low vison aids (i.e., sun ware/filters, brimmed hats, visors)
- Public or other alternate means of transportation (city bus, taxi, Uber)
- Top right photo: young male using a hand-held monocular distance low vision device
- Lower right photo; display showing an assortment of monocular and binocular distance low vision devices (hand-held, clip-on, and head born)

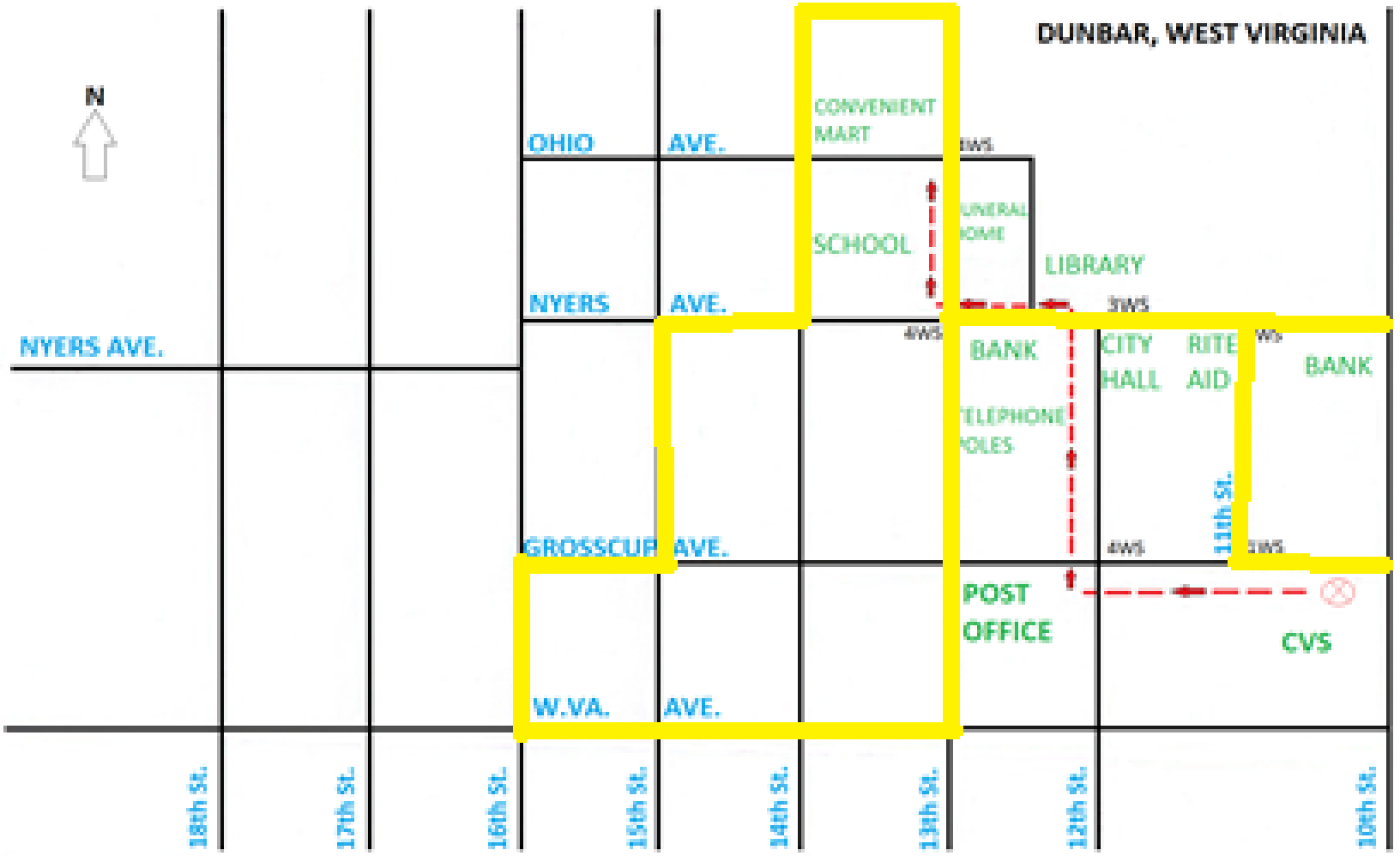
Baseline determination of pre-driver readiness

- Let's fast forward to age 16, or to whatever age your son or daughter needs to be to become eligible for driver licensure in your State or Province;
- Provide a sampling of ***baseline determination for pre-driver readiness***, prior to their participation in formalized bioptic driver training practices.

Instructions for student to follow:

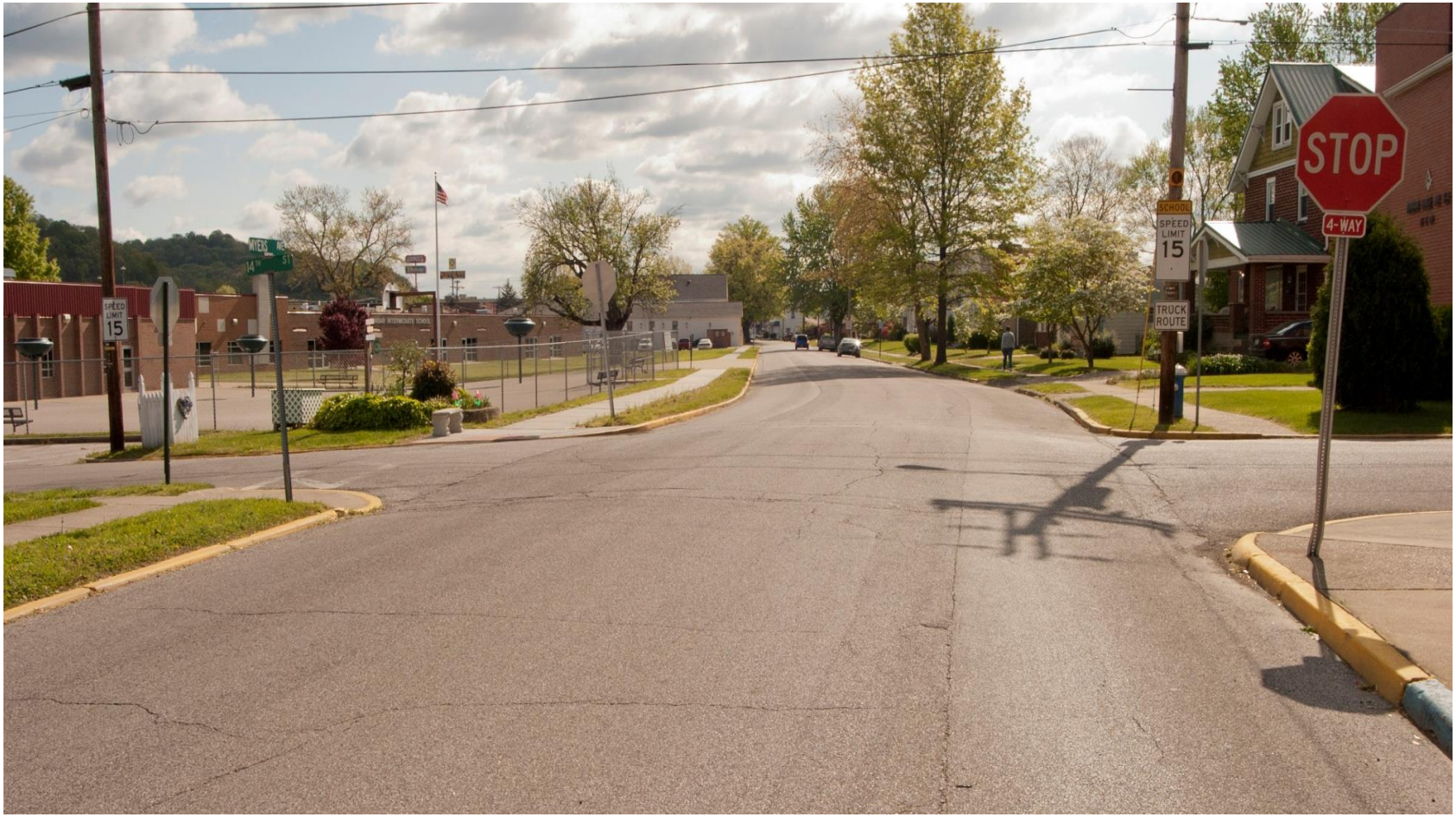
- We are going to approach several intersections. As soon as you can grossly identify a stop sign, say "**stop sign ahead**"
- Then as we get closer to the intersection, share with me (instructor) whether such intersection is: **plus-shaped, t-shaped, x-shaped, etc**.
- As we arrive at the intersection, determine by scanning what the traffic control is. For example, have you arrived at a **4-way stop intersection, 2-way stop intersection, need not stop, etc.?**

Residential-small business area



4-way stop intersection

4-way stop intersection
(note, legendary panel)



Getting closer (approach magnification)

3-way stop plus-shaped intersection
(note one-way sign below)

Getting closer (approach magnification)

Residential-small business area

Sample questions - route 1

- Let's review the concept of basic compass directions and opposites.
- If I mention the concept "linear block", do you understand what that means?
- Now I am going to ask you to get me driving in a westerly direction; and advise when I have driven two (2) linear blocks west.

Residential-small business area

Sample questions - route 1

- At two blocks west, regardless whether student advises instructor or not, instructor will turn right/north and travel one (1) more linear block. Instructor then asks:
  - Since starting the route, how many blocks and directions have we traveled?
  - What shape of route have we traveled?

Residential-small business area

Sample questions - route 1

- Instructor then turns left/west and travel another block west; then turns right and travels another block north. Instructor then stops and ask student:

  - Since starting the route, how many total blocks have we traveled?
  - What compass directions have we travelled so far?
  - What shape of route have we traveled now (is it an oblong/rectangular shaped route or a stair-case route)?

Sample questions - route 1

- Instructor then asks student:
  - What does a "**reverse route**" mean to you?
  - Now I want you to try your best to reverse your route, and get us back to your original starting point (**CVS Pharmacy**).

Residential-small business area

Reverse route

Instructor intervenes and asks:

- Since we are in a car, and the one-way street to your right prevents us from turning right, what would be another way in returning to our starting point?
- What type of route is that oftentimes referred to as? Hint: it begins with an “a” (answer: “**alternate route**”)
- So, what do we need to do to proceed further?

Travel 1 block further east and just beyond Rite Aid, turn right

Getting closer (approach magnification)

Getting closer (approach magnification)

Get the big picture! Scan!

Walla! CVS Pharmacy!

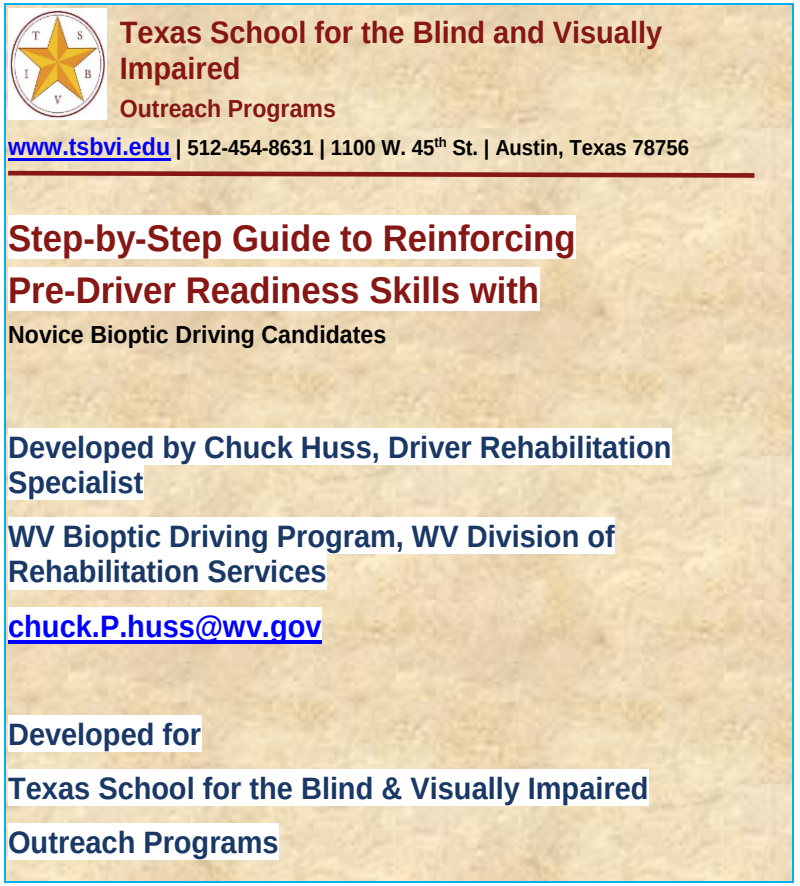
By training's end, a trained low vision traveler should at the very least be able to:

- Take in, remember and follow route instructions
- Travel and reverse a route of travel
- Detect, identify and react in time to critical objects
- Cross stop sign and traffic light-controlled intersections

* **Major finding - WV Pilot Low Vision Driving Study, '85-'98, those clients found to be pre-driver ready were able to perform these basic pre-driver readiness skills.**

Step-by Step Guide to Pre-Driver Readiness

- Free standard and large print size copies available
- Includes instructional material re:
  - Distance viewing skills
  - Critical object awareness skills
  - Basic bioptic usage skills
  - Hazard perception skills
- Contact Chuck Huss, COMS at **chuck_huss@hotmail.com**



Texas School for the Blind and Visually Impaired

Outreach Programs

www.tsbvi.edu | 512-454-8631 | 1100 W. 45th St. | Austin, Texas 78756

Step-by-Step Guide to Reinforcing Pre-Driver Readiness Skills with

Novice Bioptic Driving Candidates

Developed by Chuck Huss, Driver Rehabilitation Specialist

WV Bioptic Driving Program, WV Division of Rehabilitation Services

chuck.P.huss@wv.gov

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Advanced/active passenger-in-car skills*

- Distance viewing skills
- Critical object or condition awareness skills
- Basic bioptic usage skills
- Hazard perception skills

* **Undertaken from the front right seat (with parent or instructor driving)**

In essence

- Teaching your child or student:
  - Where, from what position and how to look
  - What to look for
  - Situations that require a possible change in speed or lane position or both
  - How vertical spotting through their miniature telescope will increase their awareness of critical objects or conditions

Flagger - work site

Unexpected road closure!

Motor vehicle accident scene

First in line to traffic light- controlled intersection

Intersection with fixed hazards

In the Driver's Seat: Introduction to Low Vision Driving

- Annual Weekend Workshop
  - Under the direction and coordination of Dr. Cindy Bachofer, PhD, CLVT
  - TSBVI, Austin, TX
  - Teenagers & parents
  - Interests in exploring the driving privilege with bioptics

BCVA evaluation and BTLS fitting

Major bioptic lens system vendors

- **Designs For Vision, Inc., (DVI)**
  - Jody Klager, jody@dvimail.com
  - 1-800-345-4009
- **Ocutech, Inc. (VES)**
  - Tina Woods, t.woods@ocutech.com
  - 1-800-326-6460, info@ocutech.com
- **Conforma contact lens (BITA)**
  - Teri S. Mackley, tmackley@conforma.com
  - 1-757-321-0186

Bioptic training exercise (on-foot)*

- Shorter students - front row, arms-length apart
- Taller students - back row, arms-length apart

*** Sun at side or behind**

Position parked vehicles to simulate a multi-lane, two-way roadway

During carrier lens viewing, the upper limit of one's pupil:

- Should be in line with lower portion of ocular lens of telescopic unit
- Offers optimal general non-magnified viewing through carrier lens
- Requires minimal fixation time (unmagnified to magnified viewing)

During telescopic viewing:

- Fixations are kept brief (1.0 second or less) and intermittent, not continuous
- Engaged on straight stretches of roadway with ample sight distance
- Engaged in absence of critical objects within space cushion of bioptic user's vehicle (i. e. jack in the box scenarios)

Sampling of areas to be covered:

- Nearness illusion
- Restricted field of view
- Movement of magnified field in opposite direction to head turn
- Maintenance of peripheral reference points (due to **vertex distance**)
- "**Jack in the Box**" effect (created by mid-block street crossing, unsafe passing or lane change, lane-jumping)

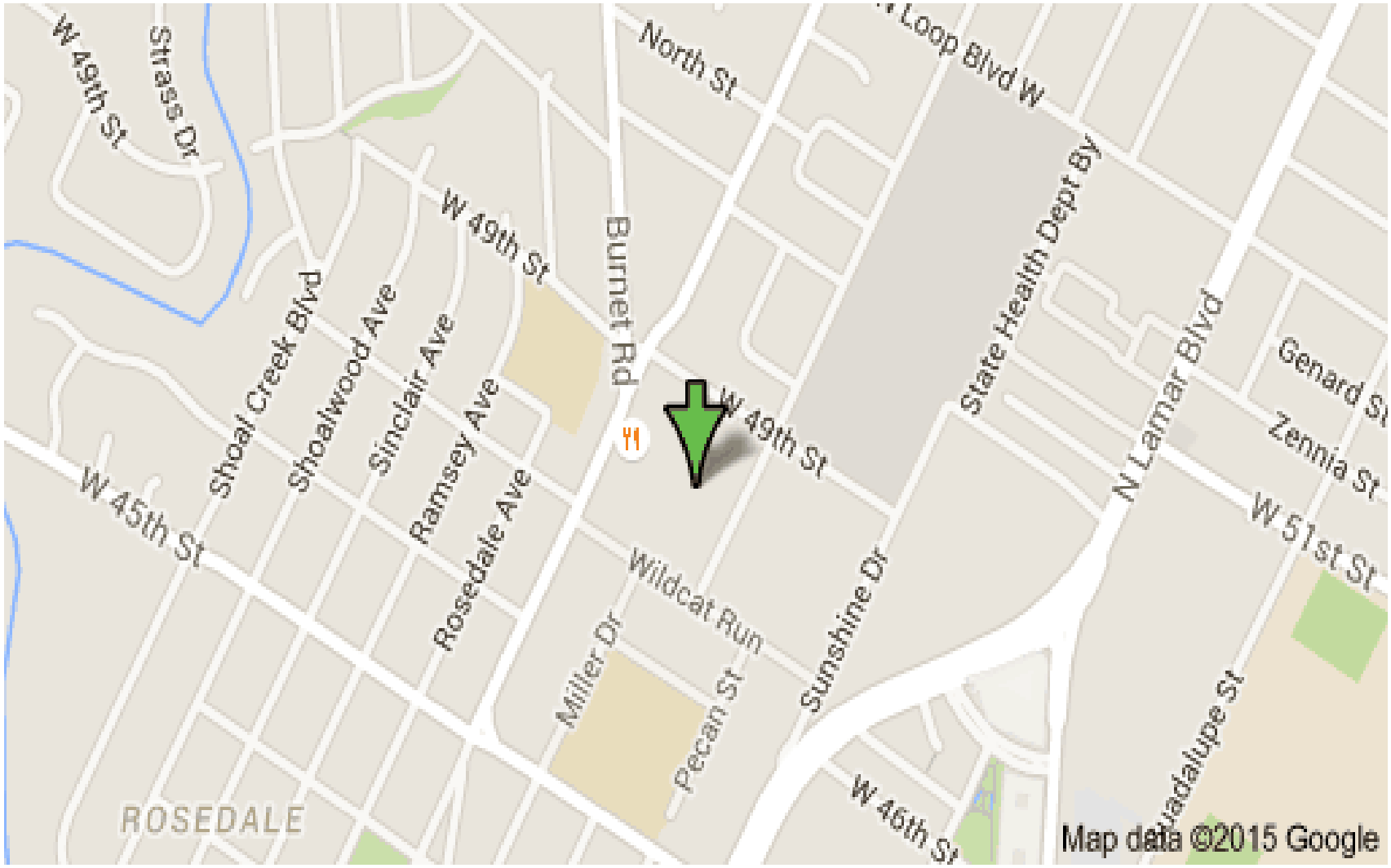
Common Misconception

- There is no known benefit nor reason to require a person with mild to moderate levels of central vision loss to use a bioptic lens system during the driving task.

Benefit of usage

- A bioptic lens system allows the user to increase their "***margin of safety***"; that is the time or linear distance equivalent that increases their ability to detect, identify, predict and decide, whether a change in speed or lane position is needed, as they approach a critical object or condition.

Passenger-in-car reinforcement route (aerial view)

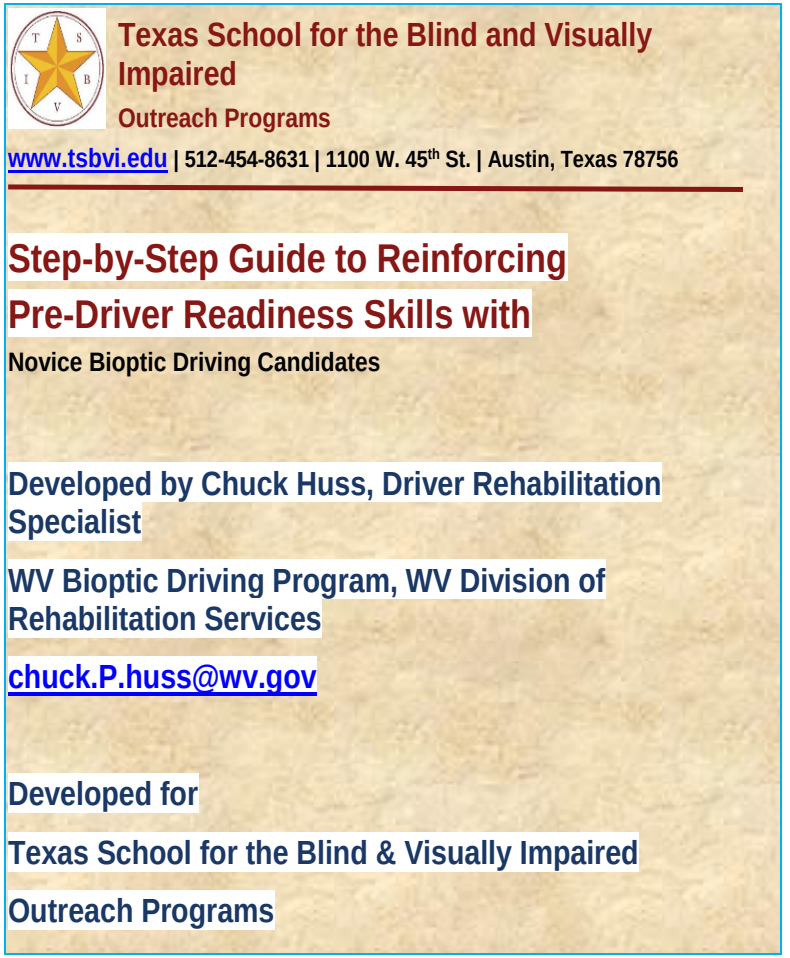


Why am I a strong proponent of pre-driver readiness (PDR) training & reinforcement?

- Post Evaluation: What were some of the "***activities you like best about the workshop***"?
  - Hands on experience with bioptics
  - Reinforcement of PDR skills learned (active, front seat passenger-in-car) with parents observing

Pre-driver readiness guide

- Free standard or large print size copies
- Send e-mail request to: **chuck_huss@hotmail.com**



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In conclusion

- Being ***pre-driver ready*** can oftentimes reduce the cost and length of driver's training
- Increase likelihood of success for completion of driver's training;
- Enhance the probability of obtaining a driver's license!

Time for Q&A!

For more information:

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