CHAPTER 9. COUNTERMEASURES

PBCAT is designed to assist agencies with selecting countermeasures to improve pedestrian and bicyclist safety. The application includes links to two FHWA Web sites that feature a substantial number of countermeasures that may be used to mitigate specific crash types. These Web sites are PEDSAFE—Pedestrian Safety Guide and Countermeasure Selection System[9] (www.walkinginfo.org/pedsafe) and BIKESAFE—Bicycle Countermeasure Selection System[10] (www.bicyclinginfo.org/bikesafe). (See figure 93.)

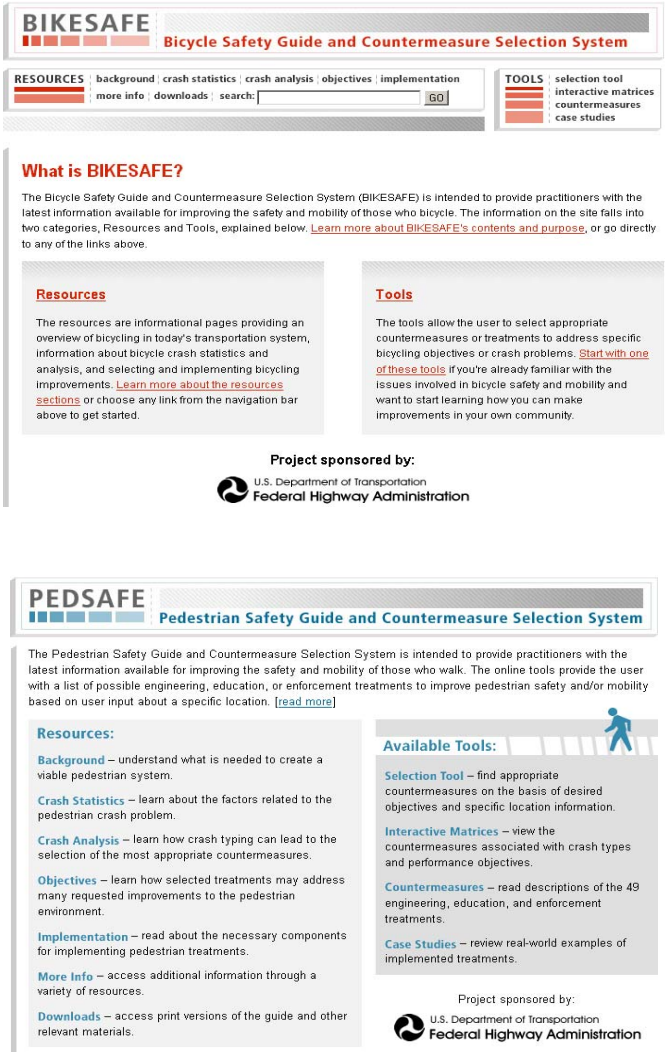

Figure 93. Image. Access the PEDSAFE and BIKESAFE Web sites.

These Web sites provide practitioners with the latest information available for improving the safety and mobility of pedestrians and bicyclists. Both sites include interactive tools and are designed to:

- Provide information on countermeasures available for prevention of pedestrian and bicyclist crashes and improving motorist and pedestrian behavior.
- Highlight the purpose, considerations, and cost estimates associated with each countermeasure.
- Provide a decision process to select the most applicable countermeasures for a specific location.
- Provide links to case studies showing various treatments and programs implemented in communities around the country.
- Provide easy access to resources such as statistics, implementation guidance, and reference materials.

A click on either button on the *Countermeasures* window (See figure 94.) will launch the default browser and access the home page for the selected site. Countermeasures are provided for 12 crash groups in PEDSAFE and 13 crash groups in BIKESAFE. Click on the *Crash Type Mapping* buttons (in either HTML or PDF) to view tables showing the relationship between PEDSAFE and BIKESAFE groups and the PBCAT crash types and groups. These tables are also included in Appendix H.

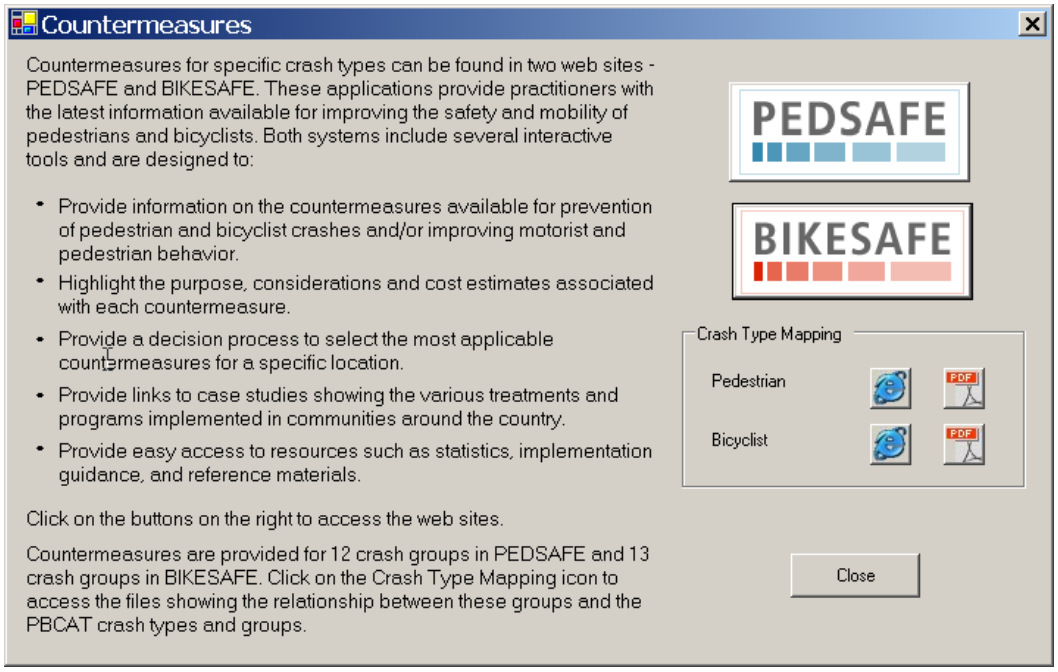

Figure 94. Image. Access the PEDSAFE and BIKESAFE Web sites.

PEDESTRIAN COUNTERMEASURE MATRIX

Within the PEDSAFE application, the countermeasures related to the 12 crash groups are presented in an interactive matrix. (See figure 95.) The 49 countermeasures included on the site are organized into seven categories of treatments as follows:

- Pedestrian Facility Design.
- Roadway Design.
- Intersection Design.
- Traffic Calming.
- Traffic Management.
- Signals and Signs.
- Other Measures.

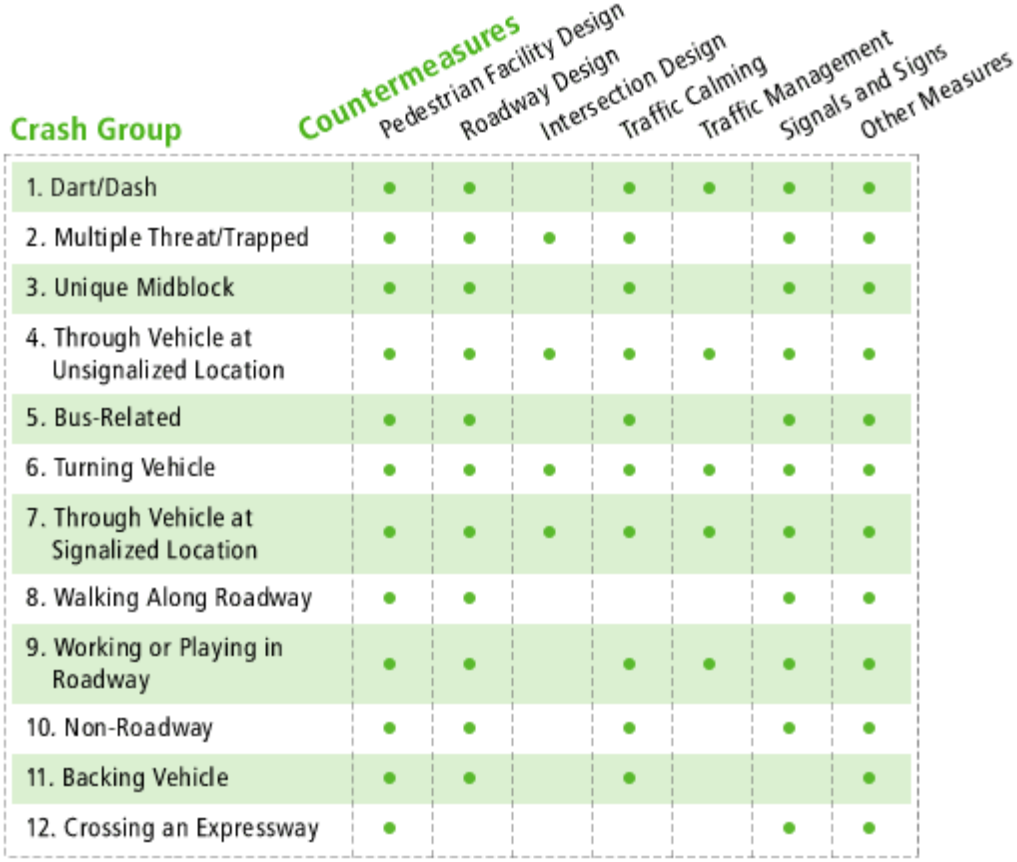

Figure 95. Image. View countermeasures for 12 pedestrian crash groups.

BICYCLIST COUNTERMEASURE MATRIX

Within the BIKESAFE application, the countermeasures related to the 13 crash groups are presented in an interactive matrix. (See figure 96.) The 50 countermeasures included on the site are organized into nine categories of treatments as follows:

- Shared Roadway.
- On-Road Bike Facilities.
- Intersection Treatments.
- Maintenance.
- Traffic Calming.
- Trails/Mixed-Use Paths.
- Markings, Signs, Signals.
- Education and Enforcement.
- Support Facilities and Programs.

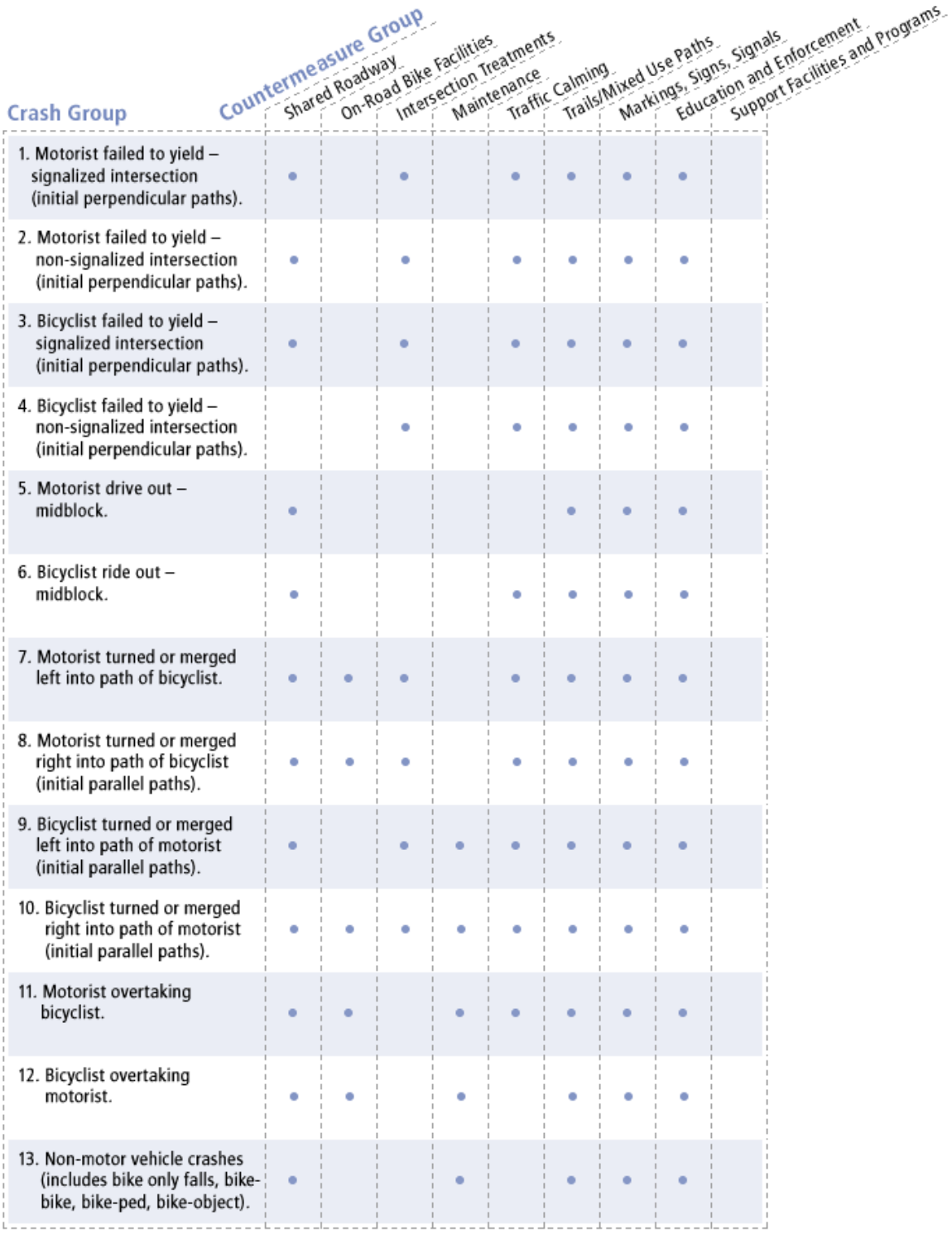

Figure 96. Image. View countermeasures for 13 bicyclist crash groups.

COUNTERMEASURE DESCRIPTIONS

A click on a cell in either matrix will produce a list of available countermeasures that may be used to address the problems associated with a specific crash group. A click on the countermeasure itself will produce a detailed description of the treatment that includes a discussion of the purpose, considerations, estimated cost, and links to case studies. (See example in figure 97.).

The treatments and programs included on these sites have been in place for an extended period of time or have been proven effective at the time the product was developed. Since that time, new countermeasures continue to be developed, implemented, and evaluated. Thus, practitioners should not necessarily limit their choices to those included on the sites; this material is only a starting point. More information on the latest treatments and programs can be found through many of the Web sites and other resources included in the *More Info* sections on both sites.

Right-Turn-on-Red Restrictions:

View Other Signals and Signs Treatments

A permissible Right Turn on Red (RTOR) was introduced in the 1970s as a fuel-saving measure and has sometimes had detrimental effects on pedestrians. While the law requires motorists to come to a full stop and yield to cross-street traffic and pedestrians prior to turning right on red, many motorists do not fully comply with the regulations, especially at intersections with wide turning radii. Motorists are so intent on looking for traffic approaching on their left that they may not be alert to pedestrians approaching on their right. In addition, motorists usually pull up into the crosswalk to wait for a gap in traffic, blocking pedestrian crossing movements. In some instances, motorists simply do not come to a full stop.

One concern that comes up when RTOR is prohibited is that this may lead to higher right-turn-on-green conflicts when there are concurrent signals. The use of the leading pedestrian interval (LPI) can usually best address this issue (see Pedestrian Signal Timing). Where pedestrian volumes are very high, exclusive pedestrian signals should be considered.

Prohibiting RTOR should be considered where and/or when there are high pedestrian volumes. This can be done with a simple sign posting, although there are some options that are more effective than a standard sign. For example, one option is a larger 762-mm by 914-mm (30-in by 36-in) NO TURN ON RED sign, which is more conspicuous. For areas where a right-turn-on-red restriction is needed during certain times, time-of-day restrictions may be appropriate. A variable-message NO TURN ON RED sign is also an option.[6]

- view purpose
- view considerations
- view estimated cost
- view case studies


view


view


view

Purpose

- Increase pedestrian safety and decrease crashes with right-turning vehicles.

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Considerations

- Prohibiting RTOR is a simple, low-cost measure. Together with a leading pedestrian interval, the signal changes can benefit pedestrians with minimal impact on traffic.
- Part-time RTOR prohibitions during the busiest times of the day may be sufficient to address the problem.
- Signs should be clearly visible to right-turning motorists stopped in the curb lane at the crosswalk.

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Estimated Cost

$30 to $150 per NO TURN ON RED sign plus installation at $200 per sign. Electronic signs have higher costs.

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Case Studies

Orlando, FL

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Figure 97. Image. View countermeasure descriptions.