Part V. ISLANDS

A. GENERAL

5A–1 Scope of Island Standards

A traffic-control island is a defined area between traffic lanes for control of vehicle movements or for pedestrian refuge. Within an intersection area, a median or an outer separation is considered to be an island. An island may be designated by paint, raised bars, mushroom buttons, curbs, guideposts, pavement edge, or other devices.

For the purposes of this Manual, an island includes not only the designated area but also all end protection and approach end treatments.

It should be realized that islands constitute an integral part of the geometric design of streets and highways and should be included in overall projects for construction. At times, however, an island may need to be installed at an existing intersection to improve or correct an outdated design. This Manual treats primarily the traffic-control characteristics of islands rather than their design features; however, certain minimum standards are given. Other features of island design are presented to be used as guidelines.

5A–2 Legal Authority

All traffic islands shall be installed by the authority of the public body or official having jurisdiction. For those islands that are elements of street and highway design and are included in the design of the street or highway, no specific authority is required.

5A–3 Classification and Function

Islands frequently serve more than one purpose but may be generally classified according to their main function as follows:

1. Pedestrian refuge islands.
2. Traffic divisional islands.
3. Traffic channelizing islands.

5A–4 Pedestrian Refuge Islands

The specific function of a refuge island is to provide a place of safety for pedestrians who cannot cross the entire roadway width

at one time in safety because of changing traffic signals or on-coming traffic.

Refuge islands are particularly useful at intersections in urban areas where there is a considerable amount of pedestrian traffic and where heavy volumes of vehicular traffic make it difficult and dangerous for pedestrians to cross, such as:

1. On multi-lane roadways.
2. In large or irregularly shaped intersections.
3. At signalized intersections to provide a place of safety between different traffic streams.

When refuge islands are required at each intersection along a street, consideration should be given to providing a continuous median divider strip between intersections.

Passenger loading islands are considered to be a special class of refuge islands inasmuch as they serve as a pedestrian refuge while loading and unloading passengers from transit vehicles.

5A–5 Traffic Divisional Islands

The function of divisional islands is to separate opposing traffic; also, they may be used to separate traffic in the same direction, e.g., to divide left-turn traffic in a median lane from the through traffic. Divisional islands are used to guide traffic around an obstruction within the roadway (such as a bridge pier), in advance of an intersection to separate opposing traffic and may be located to prevent overtaking and passing at hazardous points, such as sharp curves or narrow underpasses.

Where divisional islands are continuous, they are called medians; the more important functions are as follows:

1. Medians provide an insulating area between opposing streams of moving traffic.
2. Medians provide protection and control of cross and turning traffic.
3. Medians provide a refuge for pedestrians.

5A–6 Traffic Channelizing Islands

The primary function of a channelizing island is to control and direct a motorist into the proper channel for his intended route. Channelizing islands may be installed in areas that otherwise would be broad expanses of pavement, to bring about an orderly flow of traffic.

Channelization is particularly helpful at streets intersecting at oblique angles, at 3-leg junctions, and at multileg intersections.

Traffic channelizing islands may be provided for separation (and special control) of turning movements.

5B–1 General

The necessity for islands should be determined only by careful study, since they are placed in an area that would otherwise be available for vehicular traffic. This is particularly true for a channelizing island because the shape and size of the island will vary widely according to the intersection conditions. For this reason, it may be desirable to test the layout by temporarily delineating channelizing islands before final installation.

Islands should be carefully planned and designed to provide travel paths that are obvious, easy to follow, and continuous so as not to constitute a hazard in the roadway.

The number of channelizing islands used at any intersection should be kept to a minimum and the entire layout should be the simplest design that will accomplish the desired intersection control. Usually a few carefully placed islands of above-minimum size are more effective than a greater number of small islands which create multiple channels and cause confusion.

Islands should be clearly visible at all times and from a position sufficiently in advance so that the motorist will not be surprised by their presence. Islands should occupy the minimum of roadway space needed for the purpose and yet be of sufficient size to be noticeable.

The approach nose of a divisional or pedestrian refuge island which separates opposing traffic movements should be offset to the left, as faced by approaching traffic. The right curb of the island should form a diverging taper to deflect traffic toward the right. Where a channelizing or divisional island is introduced between two lanes of traffic moving in the same direction, similar offsets should be used, to the extent that space permits, on each side of the nose to direct traffic into the separate roadways.

Criteria for the design of islands are contained in A Policy on Geometric Design of Rural Highways, 1965, and A Policy on Arterial Highways in Urban Areas, 1957.[1]

5B–2 Size and Shape

Islands generally are either narrow and elongated or triangular in shape. The size should be governed by site conditions and the function of the island. An island should be large enough to command attention.

[1] Available from the American Association of State Highway Officials, 341 National Press Building, Washington, D.C. 20004.

For rural conditions, triangular islands should be at least 50 square feet and preferably 75 square feet. For urban conditions where speeds are low, islands about two-thirds this size may be acceptable. Elongated islands should be not less than 4 feet wide and 20 feet long. In special cases where space is limited, elongated islands may be as narrow as 2 feet, except where used as pedestrian refuge areas, and as short as 12 feet.

Refuge islands should preferably be at least 6 feet and in no case less than 4 feet wide. The usable length along the roadway, including any section at pavement level at the crosswalk, should not be less than 12 feet or the width of crosswalk, whichever is greater.

Where possible, the width of a divisional island should be sufficient to provide a refuge area for vehicles crossing or turning at intersections, preferably 30–40 feet. The minimum desirable width of a median which will accommodate a turning lane is 16 feet. Where right-of-way is severely limited, median widths of 12 feet have been used with a 10-foot turning lane.

Generally, divisional islands should not be placed where they will confine either side of the roadway to less than two through traffic lanes, except when a short island is used on two-lane roads carrying relatively low volumes of traffic.

5B–3 Designation of Island Areas

Easy recognition of islands by approaching motorists is necessary for efficient and safe operation. The forms or means of designating island areas vary, depending on their sizes, locations, and functions, and also the character of the adjacent area, rural or urban. An important consideration, in all locations, is to provide a contrast in color, and preferably texture, between islands and adjacent pavements.

Generally, islands should present the least potential hazard to approaching vehicles and yet perform their intended functions. When curbs are used, the mountable type is preferable except where a barrier curb is essential for traffic control or pedestrian refuge. Barrier curb also may be used on islands where traffic control devices are installed.

Islands may be designated as follows:

1. Raised and outlined by curbs and filled with pavement, turf, or other material.

2. Formed by pavement markings (sometimes supplemented by buttons or raised bars or flexible stanchions on all-paved areas).

3. Unsurfaced areas (sometimes supplemented by delineators, guideposts, or other devices).

Landscaping, where used, should be carefully planned to provide unrestricted visibility for motorists and pedestrians. Since pedestrian refuge and channelizing islands are located in the line of the traveled-way, no physical obstructions, other than traffic control devices should be placed in the islands.

C. APPROACH END TREATMENT

5C–1 General

The approach end of an island or group of islands must be carefully designed to provide a maximum degree of warning of the presence of the island and a definite indication of the proper vehicle path or paths to be followed. This applies to the approach to all refuge and directional islands and to individual divisional islands, but is not applicable to island ends at median openings on a divided street or highway and may not be necessary at secondary islands located within a multiple-island intersection.

5C–2 Method

Various methods of approach-end treatment have been used with satisfactory results: contrasting pavement colors or textures, raised bars, buttons, and median blocks. In addition to these physical changes in pavement surface, various types of illumination (sec. 5D), signing (sec. 5E) and markings (sec. 5F) are necessary to provide adequate visibility, warning, and delineation.

The ends of islands first approached by traffic should be preceded by a gradually diverging marking on the roadway surface, so as to guide vehicles into desired paths of travel along the island edge. These markings may contain slightly raised (usually less than 1 inch high) sections of coarse aggregate or other suitable material (jiggle bars) that may be crossed readily even at considerable speeds. These jiggle bars provide increased visibility of the marked section and produce a rumbling noise under traffic.

Higher raised bars or buttons may be used in advance of islands having barrier curbs, but they should not be used where they constitute an unexpected hazard. These devices should not project more than 1 to 3 inches above the pavement surface, so that any wheel encroachment within the area will become obvious to the vehicle driver without a resultant loss of control of the vehicle. Where practical, such bars or buttons may be preceded by jiggle bars or their height should be gradually increased as approached by traffic. Pavement markings may be used with raised bars or buttons to better designate the island area.

D. ILLUMINATION

All islands and the proper channels of travel through them should be made clearly visible at night by adequate reflectorization and/or illumination. Illumination of refuge islands, including their approach-end treatment, should be sufficient to show the general layout of the island and immediate vehicular travel paths, with the greatest concentration of illumination at points of possible danger to pedestrians or vehicles, as at barrier curbs or other structures.

E. SIGNS

5E–1 General

Although safety and efficiency of operation of sections of roadways adjacent to islands depends to a considerable degree on the geometric design, the physical layout should be supplemented by effective signing as a means of informing, warning, and controlling drivers. Sign planning should be coordinated with the physical layout prior to completion of design. Signing cannot correct an improper geometric design feature.

5E–2 Application

Many standard signs (Part II) are applicable and needed because of the existence of islands.

All approach noses of islands in the line of traffic should be designated by an appropriate sign and/or marker. All signs used on islands shall be reflectorized and/or illuminated. Signs are to be used where the island is sufficiently wide, at least 1 foot wider than the sign. On narrower islands, a reflectorized object marker (sec. 3C–1) shall be used.

Appropriate signs for use on island approach noses are:

1. KEEP RIGHT (sec. 2B–24), where all traffic is required to pass to the right of the island nose.

2. KEEP LEFT (sec. 2B–24), where all traffic is required to pass to the left of the island nose.

3. Double Arrow warning sign (sec. 2C–34), where traffic may pass to either side of the island and a special warning is needed such as at loading and refuge islands.

4. Guide signs such as route marker assemblies or destination signs at large intersection channelizing islands.

These signs should be placed well back from the approach nose of the island to reduce the likelihood of being struck by a vehicle. Because they are viewed from a location considerably in advance of the island, they can be set back distances up to 50–75 feet in rural

areas, and yet present a proper perspective. Where posts are likely to constitute a hazard, they shall be designed to break off or yield when struck by a vehicle.

The above signs may not be necessary or even desirable at secondary islands located within a multiple-island intersection or at intermediate ends of divisional islands and medians. Object markers (sec. 3C–1), are frequently beneficial at such locations to accentuate the ends of the islands without presenting a cluttered arrangement of signs.

Usually signs will not be installed on islands designated only by painted markings on the pavement. When experience indicates that signing is necessary for proper roadway usage, the islands generally should be defined by curbs or means other than paint alone.

Other signs that may be necessary for the orderly flow of traffic at channelized intersections include: Turn Prohibition (sec. 2B–15), DO NOT ENTER (sec. 2B–25), and ONE WAY (sec. 2B–28).

F. MARKINGS

5F–1 General

Definition of proper travel path of vehicles is necessary for islands to function efficiently. Reflectorized pavement markings and delineators should be provided to furnish an uninterrupted guidance system.

5F–2 Application

Markings, as related to islands, consist of pavement and curb markings, object markers and delineators.

On the approach to islands, the triangular neutral area, just in advance of the end of the island, is to include pavement markings as provided in section 3B–13. As indicated in section 5C–2, it is desirable that jiggle bars (or other contrast in pavement surface) also be applied in these neutral areas. When raised bars or buttons are used, they should be marked with white or yellow reflectorizing materials, as determined by the direction(s) of travel they separate (sec. 3D–3).

5F–3 Colors

Islands, outlined by curbs or pavement markings should be marked with reflectorized white or yellow material as determined by the direction(s) of travel they separate (secs. 3B–9 and 10, 3D–3).

On very long islands, curb reflectorization need not extend for the entire length of the curb, especially if the island is illuminated or

marked with delineators. It should be sufficiently long to denote the general alignment of the edge of the island along which vehicles travel, including the approach nose, when viewed from the approach to the island.

5F–4 Object Markers

Object markers (sec. 3C–1) should be used on island approach noses to indicate the presence of a raised curb or other obstruction. The marker should be used even where a sign is installed as indicated in section 5E–2. They may also be needed to define ends of other islands to make them more conspicuous at night, particularly where illumination is not provided.

5F–5 Delineators

Where delineators are used with island installations, they shall be white or, when facing wrong-way traffic, they shall be red (sec. 3D–4). Each travel path through an intersection must be considered separately in positioning delineators to assure maximum effectiveness.