MINI-ROUNDABOUTS

Mini-roundabouts or neighborhood traffic circles are an ideal treatment for minor, uncontrolled intersections. The roundabout configuration lowers speeds without fully stopping traffic. Check out NACTO's Urban Street Design Guide or FHWA's Roundabout: An Information Guide Design Guide for more details.

DESIGN CONSIDERATIONS

Mini-roundabouts can be created using raised islands and simple markings. Landscaping elements are an important component of the roundabout and should be explored even for a short-term demonstration.

The roundabout should be designed with careful consideration to lane width and turning radius for vehicles. A mini-roundabout on a residential street should provide approximately 15 ft. of clearance from the corner to the widest point on the circle. Crosswalks should be used to indicate where pedestrians should cross in advance of the roundabout. Shared lane markings (sharrows) should be used to guide people on bikes through the intersections, in conjunction with bicycle wayfinding route markings if appropriate.

Note: Becase roundabouts allow the slow, but free-flow movement of vehicular traffic through an intersection, education and outreach efforts geared towards bicyclists and pedestrians should be considered.

COMMON MATERIALS CATEGORIES

1. **SURFACE TREATMENTS:**
   - » **Striping:** Solid white or yellow lines can be used in conjunction with barrier element to demarcate the roundabout space. Other likely uses include crosswalk markings: solid lines to delineate cross-walk space and / or zebra striping.
   - » **Pavement Markings:** May include shared lane markings to guide bicyclists through the intersection and reinforce rights of use for people biking. (Not shown)
   - » **Colored treatments:** Colored pavement or other specialized surface treatments can be used to further define the roundabout space (not shown).
2. **BARRIER ELEMENTS:** Physical barriers (such as delineators or curbing) should be used to create a strong edge that sets the roundabout apart from the roadway.
3. **LANDSCAPING ELEMENTS:** Shrubs or trees contribute to traffic calming and add beauty.
4. **SIGNS:** Signs helps reinforce correct traffic flow and is particularly important in areas where roundabouts and traffic circles are unfamiliar. Consult the MUTCD for signs guidelines.

Guidance based on NACTO Urban Street Design Guide. For more detail, visit: nacto.org

Top: A 6-month pilot traffic circle in Palo Alto, CA (Joshuah Mello); Middle: Demonstration traffic circle in Livingston, MT (Melinda Barnes, Bike Walk Montana); Bottom: Pop-up MANGO demonstration project in Santa Monica, CA (City of Santa Monica).

TYPICAL DIMENSIONS CHEAT SHEET

1. **ROUNDABOUT SIZE:** The center of the roundabout should be as large as possible within intersection constraints - roundabout must allow for adequate vehicle circulation around the circle in all directions. Leave at least 15 ft. of space between the curb corner and inner curb defining the circle.

2. **SPLITTER ISLAND SIZE:** Recommended longitudinal dimension for a splitter island varies greatly, depending on design speed, roadway configuration and type of roundabout being designed.

3. **PEDESTRIAN CROSSINGS:** A true mini roundabout typically requires pushing pedestrian crossings back to accommodate vehicle circulation and preserve pedestrian safety - place relocated pedestrian crossings 20 - 25 ft. "upstream" of the roundabout entrance line.

4. **BIKE-FRIENDLY MINI-ROUNDABOUTS:** Vehicles typically travel through mini-roundabouts at 12 - 20 mph - similar to the speed of bicycle travel. Thus, people on bikes should navigate through a mini-roundabout as if they were a vehicle, in a shared lane condition. If bike lanes are present approaching a mini roundabout, they should be terminated prior to the intersection. Include signs to alert all users of merging. FHWA's mini-roundabout guidance suggests the following:

   "Terminate the bike lane at least 100 ft. upstream of the entrance line, provide a 50 ft. taper ending prior to the crosswalk at the roundabout entry, and use a dotted bike lane stripe for the last 50 to 200 ft. prior to the beginning of the taper."

Demonstration roundabout in Livingston, CA (Congress for the New Urbanism: California Chapter).

Surface Treatment
Temporary striping created with sidewalk chalk (spec sheet page 51).

Barrier Elements
Straw wattle acts as temporary curb – tree in center adds greenery. Cones and plants create a splitter island (spec sheet pages 28, 41, 69)

CASE STUDY: LONG BEACH, CA

1 Day **Demonstration**

Project Type: Mini-roundabout

Sponsor Organizations: City of Long Beach, Southern California Association of Governments

Agencies Involved: (same as above)

Materials Budget: ~$1,000

Key Materials:

- **Barrier Elements:** Plastic stanchions with sand-filled bases defined circle circumference, with plastic banners.
- **Landscaping Element:** Plants and trees borrowed from local nursery.
- **Signs:** MUTCD-compliant roundabout signs printed on large paper, pasted on cardboard, and affixed to A-frame barricades.
- **Programming:** Outreach booth with information about long-term project and city-wide bike plan.

About the Project:

The Southern California Association of Governments (SCAG) has initiated a region-wide safety and encouragement campaign called GoHuman. As part of the campaign, SCAG, Street Plans, Alta Planning + Design, and cities across Southern California are spearheading Tactical Urbanism demonstration projects. An October 2016 campaign event in Long Beach, CA featured the demonstration of a bicycle boulevard included in the City's bike plan. The street, which connected to the City's open streets route, featured a mini-roundabout made with homemad signs, landscaping, and plastic stanchions, as well as artistic crosswalks, and permanent sharrows marked by city officials.

Demonstration traffic circle in Long Beach, CA (Street Plans).

Programming
Outreach booth with information about long-term project and city-wide bike plan.

Signs
MUTCD-compliant roundabout signs printed on large paper, pasted on cardboard, and affixed to A-frame barricades.

Barrier and Landscaping Elements
Borrowed plants placed at center, surrounded by visual barrier created with plastic stanchions and project banners.

CASE STUDY: MINNEAPOLIS, MN

1 day **Demonstration**

Project Type: Protected intersection

Sponsor Organization: The Center for Prevention at Blue Cross and Blue Shield of Minnesota; Minneapolis Bicycle Coalition

Agencies Involved: Alta Planning + Design

Materials Budget: < $500

Key Materials:

» **Surface Treatments:** Black Roofing Paper; Spray Chalk; Astroturf

» **Barrier Element:** Insulation Panels; DIY Plywood Planters

About the Project: On June 8th, 2014, the Minneapolis Bicycle Coalition and Alta Planning + Design built a one day protected intersection for Open Streets Minneapolis. With the use of design elements such as corner refuge islands, protected intersections force turning cars to slow down, create fully protected right turns for bicyclists, and shorten crossing distances for both pedestrians and cyclists. The Center for Prevention at Blue Cross and Blue Shield of Minnesota helped fund this project as a part of an advocacy campaign called Bikeways for Everyone focusing on the construction of 30 miles of protected bike lanes in Minneapolis by 2020. The one day demo allowed residents to experience and learn about this type of intersection and has since helped create a movement to implemente them permanently.

Protected Bike Lane
Pop-up protected bike lane created with astro turf and homemade planters leads up to the intersection (spec sheet pages 68 - 69

Barrier Element
Insulation panels cut to the shape of medians and painted gray to look like concrete create low-cost barrier elements to define the protected intersection.

Surface Treatments
Chalk arrows direct people biking around the protected intersection, helping illustrate how it is used. Tar paper crosswalks demonstrate high visibility crosswalks (spec sheet pages 47 and 51).

Demonstration intersection in Minneapolis, MN (Alta Planning + Design).

CLOSER LOOK

PALO ALTO RESIDENTIAL TRAFFIC CIRCLE

Pilot

Project Type: Residential Traffic Circle

Location: Palo Alto, CA

Sponsor Organization/Agency:
City of Palo Alto Transportation Division

Pilot neighborhood traffic circle in Palo Alto, CA (Joshuah Mello).

CONTEXT

The City of Palo Alto Transportation Division installed a six-month pilot traffic circle at the intersection of Cowper Street and Coleridge Avenue, providing much needed traffic calming along two heavily used bike routes. Cowper Street is a city-designated bike route, and, in a city that has a 30 - 40% bicycle mode share for students traveling to school, Coleridge Avenue is a heavily used bike route.

DESIGN PROCESS

Designated as a 'Traffic Safety Pilot Project,' this temporary project was the first of its kind by the City of Palo Alto. The project arose as a response to community concerns about safety at the Cowper and Coleridge intersection. Parents in the neighborhood raised concerns that the intersection was unsafe for children biking to school. While Coleridge Avenue had a stop sign in place at each side of the intersection, Cowper Street allowed free flowing traffic. This condition led to concerns that students were not able to cross Cowper safely when traveling along Coleridge.

Parents and local neighbors originally requested stop signs at Cowper, but after the city's warrant analysis ruled out this option, the Transportation Division began searching for other solutions. The city identified a neighborhood traffic circle as one option for addressing community concerns. A small, neighborhood-level traffic calming project of this nature didn't warrant a full 1-year public outreach process, and the city felt that a pilot may be a more effective way to evaluate the concept and gather public input.

Joshuah Mello, the Chief Transportation Official with the City of Palo Alto, notes that testing the project through a pilot "helped people realize that while the neighborhood traffic circle had great potential to improve safety, it would not have a major impact on traffic circulation. If you talk about a traffic calming idea like this in a public meeting, people tend to think the project will be a lot more impactful in terms of vehicle mobility than it actually is."

An on-call traffic consultant created the design for the traffic circle using bolted down rubber curb stops that the city already had on hand, four type-1 barricades with traffic circle signs attached, and yellow traffic paint. The type 1 barricades were used to temporarily hold the traffic circle signs, but were quickly upgraded to delineators once available. A sign on the street corner also clearly states the name and duration of the pilot project and invites people to call or email with questions or concerns. While Safe Routes to School leaders of the nearby Walter Hays Elementary

Pilot neighborhood traffic circle signs in Palo Alto, CA (Joshuah Mello).

Local bike advocates evaluate the new intersection configuration (Joshuah Mello).

"IF YOU TALK ABOUT A TRAFFIC CALMING IDEA LIKE THIS IN A PUBLIC MEETING, PEOPLE TEND TO THINK THE PROJECT WILL BE A LOT MORE IMPACTFUL IN TERMS OF VEHICLE MOBILITY THAN IT ACTUALLY IS."

- JOSHUAH MELLO

School reported very positive feedback, the results were decidely mixed. The initial project design left the two existing stop signs in place, which according to Mello, caused some confusion and possibly influenced what local residents thought of the project.

Following a series of intercept survey of street users and residents located within proximity of the intersection, the city received 69 positive comments about the circle and 68 negative, with the the latter group asking for a four-way stop to be reconsidered. As of the writing of this case study, the City of Palo was engaged in another iteration of the pilot project. This time, they have removed the stop signs altogether and are letting traffic flow freely around the traffic circle for a period of 6 months. Another survey process will reveal whether the improvement will be made permanent or not.

LESSONS LEARNED

While the jury is still out on the Cowper / Coleridge intersection, the process of testing traffic safety projects has been a success for the City of Palo Alto. Indeed, at a small scale, it has helped the City gather community feedback, while reviewing the effectiveness of pilot project materials. Palo Alto will continue to look for other opportunities to use this iterative design approach as a way to quickly make streets safer and gain feedback from the community by allowing them to experience projects first hand. Indeed, this past October, the City worked with the Silicon Valley Bicycle Coalition to test out a parking-protected bikeway along Bryant Street for the 7th Annual Bike Palo event, which attracted 800 participants.