**ODOT District 8**

**Roundabout Aesthetic Design Elements**

**March 22, 2023**

Roundabouts are an effective means to improve safety at intersections with congestion and accident issues. As such, roundabouts are more common and the goal of this document is to outline the District 8 guidelines and provide plan detail information regarding aesthetic elements. Enhanced aesthetics can be in the form of landscaping of the central island, lighting, colored and stamped concrete for the splitter island and central apron and signage.

Roundabout central island landscape elements are to be designed in accordance with the ODOT Location & Design Manual (L&D), Volume 1, 905.3.3 Roundabouts; [ODOT Aesthetic Design Guidelines](https://www.transportation.ohio.gov/working/publications/aesthetic-design-guidelines); and, when applicable, L&D Volume 1, 904.2.1, ODOT Guidelines for Community Gateway Monuments. Landscape elements are vital to the proper operation of a roundabout and need to be in place when the roundabout is opened to traffic. The purpose of landscape elements within the central island are to:

* Make the central island conspicuous to drivers as they approach the roundabout.
* Clearly indicate to drivers that they cannot pass straight through the intersection.
* Restrict the ability to view traffic across the roundabout by using mounded earth and plantings. This will lead to slower entering speeds, which increases safety.
* Require motorists to focus on traffic approaching from the left.
* Reduce headlight glare.
* Discourage pedestrian traffic through the central island.

As described in L&D 905.3.3, the central island shall include an earthen mound that is a minimum of 3.5-feet to a maximum of 6-feet in height, measured from the circulating roadway surface at the curb face. The slope of the central island shall have a minimum grade of 25:1 and a maximum of 6:1 sloping upward toward the center of the island.

District 8 Baseline Landscape Design Guidelines

Incorporate baseline aesthetic elements for roundabouts in which D8 will be the maintaining agency. Coordinate with D8 HMA if upgraded aesthetics are proposed to be maintained by the District.

Enhanced aesthetic elements implementation is to follow the ODOT Aesthetic Design Guidelines and a Participation Agreement with the Local Agency must be in place prior the project sale date. Alternatively, Local Agencies may install enhanced aesthetic elements following project construction through the Permit process.

The District 8 baseline landscaping for central islands includes No. 4 landscape gravel and the minimum number of plantings (ornamental grass and/or evergreen trees) to achieve the line-of-sight goals described in L&D 905.3.3. The truck apron and splitter islands consist of integrally colored concrete (red brick) with a stamped herringbone pattern. An additional concrete apron inside the truck apron may be considered to provide snow storage, unobstructed sight distance and a maintenance pull off area.

Design lighting to satisfy the design criteria specified in the Traffic Engineering Manual section 1140-4.6.10. All lighting must be designed and approved by a licensed electrical engineer. A typical installation shall have a minimum of eight pole locations: four illuminating the circulatory roadway and pedestrian areas and four illuminating the approach tapers. Enhancing ODOT standard lighting or adding more lighting (such as decorative lighting in the center) will require local participation and ODOT approval.

Enhanced Aesthetic Design Guidelines

The landscaping for the central island may include enhanced landscape elements. When the posted speed on any approach to the roundabout is greater than 35 mph, hazards and fixed objects such as concrete, stone, or wood walls and trees having a mature diameter greater than 4 inches are prohibited within the central island. An aesthetic object placed within the central island shall meet the following requirements: be constructed with safe, light-weight materials such as Styrofoam, chicken wire and stucco, hollow plastic, etc.; be located outside the clear zone; and have a maximum footprint of 250 square feet with a maximum height of 10 feet.

Landscape Elements Shall Not:

* Contain religious, political, special interest, private, or commercial messages including, but not limited to symbols, logos, business names, trade names or jingles.
* Contain any displays with advertising, decorative banners, or non-governmental flags. Official City, County, State or U.S. Flags are permitted in limited numbers (no more than 3 total).
* Display telephone numbers, street addresses, or internet addresses.
* Include reflective or glaring surface finishes.
* Include any underground utilities (gas, water, etc.). Power supply is permitted within the central island for lighting; however, the electric service must be in the local maintaining entity’s name.
* Include illumination that impairs or distracts the vision of transportation system users.
* Display blinking or intermittent lights, changeable message signs or any type of digital display.
* Include any type of water features. Irrigation is not permitted.
* Include moving elements (kinetic art) or simulated movement.
* Include objects that could easily penetrate a windshield upon impact.

Enhanced Aesthetic Costs, Installation and Maintenance

The aesthetic enhancements must be agreed upon by ODOT and the requesting Stakeholder. As outlined in Section 2.2.3, of the ODOT Aesthetic Guidelines, the aesthetic upgrades are incorporated into the project through an Alternative Bid process. The D8 project baseline treatments are as described above.

The Stakeholder is required to provide enhanced aesthetics design drawings for incorporation into the project. The drawings are to be submitted to meet the established schedule. See Designer notes below for additional guidelines with respect to incorporating aesthetic upgrades in design.

The additional design and installation costs of enhanced landscape elements will be paid for 100% by the requesting Stakeholder through a Participation Agreement. Once the project is bid, the alternative bid will be compared to the executed Participation Agreement. The District PM will coordinate with the Stakeholder, communicating the aesthetic enhancement additional costs and requesting any additional funds for incorporating the enhancements into the project. The Stakeholder may choose not to incorporate the enhancements into the project. The project will incorporate baseline elements if the local agency opts out of enhanced aesthetic elements.

All routine maintenance and repair of enhanced roundabout elements will be paid for and provided by the local maintaining entity. Refer to [Section 2.2.4 of the ODOT Aesthetic Guidelines](https://www.dot.state.oh.us/environmental-services/manuals_guidance/Aesthetic%20Design%20Guidelines/ODOT%20Aesthetic%20Design%20Guidelines%202018.07.pdf) for details regarding maintenance agreements and incorporating enhanced aesthetics into the project.

Enhanced aesthetic elements may be included in the roundabout project plans if design details, funding, and local agency concurrence are provided before the beginning of Stage 2 design. Enhanced landscape elements may also be installed after the roundabout is constructed, either by permit for a private group or by agreement for a local government.

**Designer Notes:**

**Refer to the latest Aesthetic Design Guidelines for the most current coordination requirements.**

[Aesthetic Design Guidelines | Ohio Department of Transportation](https://www.transportation.ohio.gov/programs/environmental-services/manuals-guidance-landing/aesthetic-design-guidelines)

Coordination of aesthetic elements of the roundabout with the local agency begins during the Planning phase of the project. D8 Planning will coordinate with local agency during the scoping process so the project team has an idea if the Local Stakeholder has interest in enhanced aesthetics for the roundabout. Once the scope is complete, the Engineering PM will continue the coordination process through the development of the Participation Agreement.

**Central Island**

Use the plan notes below for the rock covered roundabout central island, truck apron and splitter islands as the D8 baseline treatment. The local agency is responsible for detailed landscape and aesthetic plans in the roundabout center. Design of enhanced elements requiring more details is responsibility of the Local Stakeholder.

Note: if the requested aesthetic upgrade is simply grass with trees and other landscape items or plan notes for aesthetic lighting, the enhanced design could be incorporated into the project design as it’s a minimal effort and additional design cost.

1. Create the central island using Item 203 – Embankment, As Per Plan
2. Place Item 204 -Geotextile on the compacted surface embankment
3. Cover the island with 6 inches of Item 203 – Granular Material, Type E, As Per Plan

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PID 96355 Example shown above WOO-199-27.97 – Completed in 2018 ([SR 199 and Roachton Road](https://www.google.com/maps/@41.5219367,-83.604659,3a,75y,71.98h,82.87t/data=!3m6!1e1!3m4!1sheyYYPxYLaacCjhLeGAhkw!2e0!7i16384!8i8192))

**Item 203 – Embankment, As Per Plan**

Construct center island embankment to the lines and grades of the plans utilizing natural soil, classifying as A-6a, A-6b, or A-7-6 per the Specifications for Geotechnical Explorations. Remove gravel, rock, shale, shale fragments, rock fragments, RAP, RPCC, organic material and other debris greater than 3” in dimension. Compact the natural soil to 98% of Standard Proctor maximum dry density, per the Supplement 1015. All other requirements of Item 203 embankment apply to this item of work.

**Item 203 – Granular Material, Type E, As Per Plan**

Supply and install Granular Material consisting of natural rounded gravel meeting the No. 4 gradation as outlined in CMS Table 703.01-1. Install the granular material in a single lift, grading as appropriate to meet the final grades outlined in the plans. Densify and compact the granular material using a walk-behind vibratory plate compactor with a compactive effort between ½ and 2 tons. Perform at least two passes of the vibratory plate compactor. Compaction testing will not be performed on the No. 4 granular material.

**Item 452 – X” Non-Reinforced Concrete Pavement, Class QC 1P, with QC/QA, As Per Plan**

Provide concrete pavement meeting the requirements of Item 452 for the central island truck apron. Provide pavement joints per Item 452 requirements, following the joint pattern depicted in the plans. Color and pattern the truck apron as indicated in the plans. If no color or pattern is specified, provide a broom finish per Item 452.

Below is an example of stamped and colored plan note to be added to the ITEM 452, APP note above.

In addition to the requirements of Item 452, provide stamped and integrally colored concrete pavement for the central island truck apron. Utilize New Brick Herringbone concrete stamp pattern as manufactured by Sika. Integrally color the concrete with SikaColor-100P, U34 Brick Red in conjunction with Sika R12 Storm Gray release color. Cure and seal the stamped and colored concrete with Scofield Curseal-W as manufactured by Sika. The contractor may submit alternate pattern and color suppliers to the District for acceptance prior to implementation.

Provide a 5 ft. x 5 ft. mock-up of the proposed truck apron concrete at least 30 days prior to placement of colored and patterned truck apron concrete. Construct the mock-up using the same techniques proposed for the truck apron production area. The Department will provide acceptance prior to implementation. If the mock-up is not accepted, provide additional samples as needed until Department acceptance has been obtained.

Designer Notes:

X = Proposed concrete pavement thickness for the truck apron

Determine thickness of the concrete apron based on the anticipated truck traffic through the roundabout using the design year traffic. An 8-inch minimum thickness is recommended.

Add color and pattern to the truck apron concrete as appropriate to meet desired aesthetics.

[Patterns & Textures (sika.com)](https://usa.sika.com/en/construction/concrete/decorative-concrete/patterns-textures.html) Use integral concrete color to achieve the desired concrete color, such as SikaColor-100 P Integral Concrete Color. Utilize a release agent to prevent the pattern stamp from sticking to the concrete and to enhance the aesthetics. The release agent is to be compatible with the integral and pattern.

Examples of colors and patterns from Sika are saved here:

[I:\Project Management Tools\How To Documents\Roundabouts\D8 Guidelines](file:///I:\Project%20Management%20Tools\How%20To%20Documents\Roundabouts\D8%20Guidelines)

Designer to provide joint spacing for concrete pavement using ACPA and FHWA guidelines

[Joint Layout - ACPA Wiki (wikipave.org)](http://wikipave.org/index.php/Joint_Layout)

[FHWA Tech Brief – Jointed Concrete Pavement (JCP) Roundabouts (FHWA-HIF-20-080)](file:///I:\Project%20Management%20Tools\How%20To%20Documents\Roundabouts\D8%20Guidelines)

The FHWA document is saved in:

[I:\Project Management Tools\How To Documents\Roundabouts\D8 Guidelines](file:///I:\Project%20Management%20Tools\How%20To%20Documents\Roundabouts\D8%20Guidelines)

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**Item 609 – Concrete Median – As Per Plan**

In addition to the requirements of Item 609, provide integrally colored and pattern concrete for the splitter islands. Match the color and pattern of the splitter islands to that of the central island truck apron.

**Plantings**

Where possible, install perennial ornamental grasses as the baseline treatment in the center island to block the line of sight. The grasses are low maintenance but do grow fast to provide the desired line of sight blocking. Place evergreen trees as necessary in the event the ornamental grass does not provide sufficient line of sight coverage.

**Lighting**

All lighting materials and hardware are to be procured from ODOT’s current approved materials list: [Home (state.oh.us)](https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.dot.state.oh.us%2FDivisions%2FConstructionMgt%2FMaterials%2FApproved-List%2FPages%2Fdefault.aspx&data=05%7C01%7CJoe.Smithson%40dot.ohio.gov%7C6c556da5ba6e4bc2176108daa55f1f21%7C50f8fcc494d84f0784eb36ed57c7c8a2%7C0%7C0%7C638004125211893596%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=aNOUF%2Bh%2FhNyAtwXsFUIrNbANeg%2Fx68X8enr5E5xlxkE%3D&reserved=0) and Qualified Products List: [Qualified Products List (state.oh.us)](https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.dot.state.oh.us%2FDivisions%2FConstructionMgt%2FMaterials%2FPages%2FQPL.aspx&data=05%7C01%7CJoe.Smithson%40dot.ohio.gov%7C6c556da5ba6e4bc2176108daa55f1f21%7C50f8fcc494d84f0784eb36ed57c7c8a2%7C0%7C0%7C638004125211893596%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=dnr7jf77L1jC1BtkBp58WxUZc5rv2n%2FKiYfhHYLPryU%3D&reserved=0). Incorporate conventional or “cobra head” style Solid-State (LED) Luminaires as outlined in Supplemental Specifications 813 and 913 for baseline roundabout lighting installations. Include conventional light pole styles found in HL-10.11 for standard roundabout lighting. Provide galvanized baseline light poles and round tapered poles at a mounting height of nominally 30 to 50 feet.