

To: Dirk Gross, Rick Bruce	
From: Brad Hyre	Project: SCI-823-Ph3
CC: Tom Barnitz, Doug Buskirk, File	
Date: December 9, 2011	Job No: HDR 71143

**RE: SCI-823-0.00, PID 77366
Portsmouth Bypass Phase 3
Stage 1 Geometrics Comments Discussion**

Design Designation

1. Provide a design designation for C.R. 503. Provide the traffic data for T.R. 248 and Pershing Avenue. Without complete design designations, lane and shoulder widths, clear zones, etc. cannot be verified. Can any of the above roads use the Very Low Volume Local Roads design criteria?

Response:

C.R. 503 (Ohio River Road/Gallia Street) – Functional class is Urban Minor Arterial (according to Functional Class Map) with a posted speed of 45 mph. Existing roadway consists of 2-12' lanes with a painted centerline. There is no curb, paved shoulder or edge lines. Certified traffic has ADT numbers (7,600 current ADT and 9,400 design year ADT), but does not give percent trucks. Legal speed and design speed are both assumed to be 45 mph unless ODOT specifies otherwise. Proposed work is approximately 500' of proposed shoulder with barrier on both sides of C.R. 503 as it passes under the U.S. 52 Ramp bridges. HDR agrees that a design designation is required. HDR proposes to design C.R. 503 as a Rural Minor Arterial since the existing facility (and area) is rural in nature and falls outside the City Limits of Portsmouth (see information below on rural portions of extended cities). The percent trucks will be listed as "Not Available" unless ODOT can provide a percentage.

According to L&D Volume 3 section 101.2

Functional classification is initially divided into urban and rural categories. Urban areas are comprised of: (1) places with a population of 2,500 or more, that are incorporated as cities, villages, and towns but excluding the rural portions of extended cities; (2) census designated places with 2,500 or more persons; and (3) other territory, incorporated or unincorporated, included in urbanized areas.

Extended cities are those cities whose boundaries include territory that is essentially rural in character (e.g., uncurbed pavement with open drainage, where a rural typical section would be more consistent with the existing roadway).

T.R. 248 (Slocum Avenue) – Functional class is Urban Collector (according to Functional Class Map). Stage 1 lists this road as Urban Local. Stage 1 plans list 25 mph as the legal and design speed. HDR currently has no traffic data available. Existing roadway is approximately 20' wide with no curb, paved shoulders or striping. Proposed work is only roadside grading. HDR does not feel that a design designation is required based on the minimal amount of work proposed (see information below).

According to L&D Volume 3 section 1302.3

Design designation is required on any improvement having pavement work or geometric changes. Design designations are necessary for side roads if relocation or significant improvements equal to or greater than 300' are involved.

Pershing Avenue North and South – Functional class is Urban Local (according to Functional Class Map). Stage 1 plans list 25 mph as the legal and design speed. HDR currently has no traffic data available. Existing roadway is approximately 16-20' wide with no curb, paved shoulders or striping. Proposed work is 620' of re-alignment (Pershing Avenue South) and 280' of re-alignment (Pershing Avenue North). HDR agrees that a design designation is required. HDR proposes to design Pershing Avenue North and South as a Rural Local since the existing facility (and area) is rural in nature (see information above as part of C.R. 503 discussion). The traffic data will be listed as "Not Available" unless ODOT can provide this information. The Very Low Volume Local Roads design criteria will be used in the design of Pershing Avenue.

2. Functional Classification – The Functional Classification Map shows S.R. 823 as having an Urban Functional Classification from U.S. 52 to approximately Stout Hollow Road and S.R. 823 should be using urban design criteria. From Stout Hollow Road to T.R. 234, S.R. 823 should be using rural design criteria.

Response:

HDR agrees that the Functional Classification Map shows S.R. 823 as having an Urban Functional Classification from U.S. 52 to approximately Stout Hollow Road and a Rural Functional Classification from Stout Hollow Road to T.R. 234. Stage 1 design used rural design criteria for superelevation over the entire length of S.R. 823. Stage 1 median shoulder width design used both urban and rural design criteria as appropriate. The median shoulder transitions from 7.5' before Stout Hollow Road (urban shoulder width design criteria) to 11' after Stout Hollow Road (rural shoulder width design criteria). U.S. 52 Ramps and S.R. 140 Ramps were designed as rural even though listed as urban in the Stage 1 design designation. Horizontal and vertical design elements satisfy both urban and rural design criteria.

With the Stage 1 median shoulder width designed for urban criteria prior to Stout Hollow Road, HDR proposes one of the following two options:

- Keep the superelevation rates as they were designed in Stage 1 (for rural) which would require a design exception
- Change the superelevation rates to meet urban, which would require a significant amount of redesign; would necessitate a contract mod to address the design change.

Schematic Plan

1. Include Curve #5 in the curve data. Label the curve numbers on the Geometric Layout.

Response:

Will comply.

2. Superelevation - "NA" should not be used as a proposed superelevation rate. If the curve is at normal crown then show the rate as "NC". Revise the superelevation rates to urban criteria for Curve #1, the U.S. 52 Ramps and the S.R. 140 Ramps.

Response:

Will comply. See discussion above for changing the superelevation rates to urban criteria for Curve #1, the U.S. 52 Ramps and the S.R. 140 Ramps.

Typical Section

1. C.R. 503 and Pershing Avenue - The proposed lane and shoulder widths could not be verified due to the lack of a design designation. C.R. 503 – Provide the proposed shoulder widths from Sta. 8+71.49 to Sta. 12+74.09, only the maximum width is shown.

Response:

Will comply. See the design designation discussion above.

2. Grading – S.R. 823, U.S. 52 and the interchange ramps should use safety or barrier grading not clear zone grading. See Section 307.2.1, LDM. Revise the Typical Sections on the Roadside Grading sheet to conform to Figures 307-1 and 307-2.

Response:

It is our understanding that Stage 1 was designed for safety grading. HDR requests clarification on the comment. The roadside grading typical section will be modified to fully comply with safety grading.

Plan and Profile

1. S.R. 823 NB and S.R. 140 Ramp A should be configured as converging roadways in accordance with Figure 505-1a.

Response:

Will comply.

2. S.R. 823 SB and S.R. 140 Ramp B should be configured as diverging roadways in accordance with Figure 505-2a. The diverging curvature should be 1° 00'.

Response:

Will comply. The diverging curvature of 1° 00' is based on the mainline design speed of 70 mph according to Table B on Figure 505-2a. HDR requests clarification that the southbound design speed will change from 70 mph (S.R. 823) to 60 mph (U.S. 52 Ramps) south of the S.R. 140 interchange. U.S. 52 Ramps are designed for 60 mph.

3. Curve #1 should have a superelevation rate of 0.033, Curve #SBEOP – 0.049, Curve #NBEOP – 0.059, Curve #U.S. 52 Ramp A-1 – 0.045, Curve #U.S. 52 Ramp A-2 – 0.048, Curve #U.S. 52 Ramp B-1 – 0.057, Curve #U.S. 52 Ramp B-2 – 0.039, Curve #S.R. 140 Ramp A – 0.032, Curve #S.R. 140 Ramp B-1 – 0.060 and Curve #S.R. 140 Ramp B-2 – 0.027.

Response:

Will comply. See discussion above for changing the superelevation rates to urban criteria for Curve #1, the U.S. 52 Ramps and the S.R. 140 Ramps.

4. Why is the length of the auxiliary lane along U.S. 52 for exit Ramp U.S. 52 Ramp A set for a two lane exit when Ramp A is only a single lane? (Only need an 800' deceleration lane.)

Response:

HDR can't determine why the deceleration lane for U.S. 52 Ramp A exit ramp shown on the Stage 1 plan set is so long. This deceleration lane will be modified to start around station 24+00 thus providing 800 feet.

5. What is the minimum proposed left shoulder width for C.R. 503?

Response:

The Stage 1 plans show a 10' shoulder proposed with barrier on both sides of C.R. 503 as it passes under the U.S. 52 Ramp bridges. Shoulder required for C.R. 503 (Arterial, >2000 ADT, 45mph) depends on urban or rural criteria. Rural requires 8' paved with a guardrail offset of 10'. Stage 1 plans show a barrier offset of 10' with shoulder paved up to it. Urban requires 1-2' paved shoulder with curb. This road does not look like an urban road, no curb, and no shoulder or edge lines. See discussion above about using rural design criteria in an urban location if the existing facility has more rural characteristics. HDR proposes to use rural criteria and leave the shoulder design as proposed in Stage 1 plans.

6. S.R. 140 is on a broken back alignment.

Response:

S.R. 140 is on a broken back alignment with a 200' tangent and no superelevation. The two curves are both 5° 30' curves which are relatively flat for the urban design speed of 45 mph. Maximum degree of curve for a 45 mph urban facility is 8° 00'. The proposed work follows existing geometry of S.R. 140 in this area. HDR recommends that the proposed S.R. 140 alignment remains as it was designed in Stage 1.

Pavement Details and Elevations

1. Generally the gores of all the ramps should be graded in such a way as to prevent the gore and the ramp pavement from draining across the mainline pavement or vice versa.

Response:

HDR will investigate during Stage 2 plan development. Ramp alignments, profiles and superelevation will be modified per plan and profile comments 1, 2, 3 and 4 above.

2. Sheet 708 – The Ramp A elevation at Sta. 76+30.44 should be 631.57 instead of 631.30.

Response:

S.R. 140 Ramp A will be re-designed to meet converging roadway standards in accordance with Figure 505-1a so this comment will no longer apply.