

Cleveland Innerbelt Study

Final Deliverable Package Meeting

ODOT District 12
5500 Transportation Boulevard
Garfield Heights, Ohio
Library Meeting Room

Friday, February 18, 2011
9:30 AM – 11:30 AM

NOTES

Attendees:

- | | | |
|-------------------|-----------------------|--|
| • Craig Hebebrand | ODOT District 12 | craig.hebebrand@dot.state.oh.us |
| • Kathy Sarli | ODOT District 12 | kathy.sarli@dot.state.oh.us |
| • Jason Wise | ODOT District 12 | jason.wise@dot.state.oh.us |
| • John Motl | ODOT District 12 | john.motl@dot.state.oh.us |
| • Mat Mauger | ODOT Central Office | mat.mauger@dot.state.oh.us |
| • Ben Kruse | ODOT District 12 | ben.kruse@dot.state.oh.us |
| • Bruce Mansfield | Burgess & Niple, Inc. | bruce.mansfield@burgessniple.com |
| • David Lenzer | Burgess & Niple, Inc. | david.lenzer@burgessniple.com |
| • Brian Toombs | Burgess & Niple, Inc. | brian.toombs@burgessniple.com |

Purpose:

- To discuss the content of the final deliverable packages for each of the individual contract groups for the Cleveland Innerbelt Study

Action Items to do after the meeting:

- ODOT D12 to check on the status of the review of the Easterly Interceptor Report at North East Ohio Regional Sewer District (NEORS) *[Hebebrand]*
- ODOT D12 to distribute the agenda and notes from this meeting to George Soos and Dave Lastovka for additional comments and review since they were unable to attend the meeting *[Hebebrand]*
- B&N to investigate the status of the work that may have been completed in the Innerbelt Curve regarding sizing the overflow pipes under the airport property. *[Toombs]*
- B&N to verify the availability of the So-Deep information in this corridor. *[Toombs]*
- B&N to verify the availability of the Geotechnical information in the Innerbelt Curve (CCG4). *[Toombs]*

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Discussion:

- **Deliverables**
 - Outdated items
 - Cost estimates
 - 1st iteration was performed Late 2006.
 - 2nd iteration was performed May 2009.
 - The latest cost estimate do not reflect the current contract group breakdown.
 - ODOT stated that they would include the task of updating the cost estimates during the next phase of the project. B&N should include the latest cost estimates as they currently stand with no revisions to them to reflect the latest contract group breaks.
 - MOTAA exhibits
 - 1st iteration was performed late 2005/early 2006 at the ACTT workshop
 - 2nd iteration was performed June 2009.
 - The latest MOTAA exhibits do not reflect the current contract group breakdown.
 - ODOT stated that they would include the task of updating the MOTAA exhibits during the next phase of the project. B&N should include the latest MOTAA exhibits as they currently stand with no revisions to them to reflect the latest contract group breaks
 - There will be a disc (CD or DVD) for each contract group. 2 copies will be submitted to Craig. Contract group disc will include:
 - Calculations
 - PDFs of roll plots
 - Information for CCG1-CCG3 will be included on the discs for CCG1, CCG2 and CCG3 since some information is not broken out in the current contract group configuration
 - Roadway GPK with disclaimer
 - Naming spreadsheet
 - Anticipated R/W takes design file
 - Information listed by Toombs in agenda for meeting
 - There will be a reference disc (CD or DVD) that will contain information equally pertinent to each contract group (e.g. survey data, comments). 2 copies will be submitted to Craig. The reference disc will include:
 - All of the review comments (as reference only) as received by ODOT, the City of Cleveland, and FHWA.
 - Certified traffic
 - Synchro/HCS files to back up certified traffic numbers
 - Survey dtms
 - Survey GPK
 - Coordinate this effort with URS and Frank Snyder (B&N)
 - So-deep information – B&N to check on what information is available regarding this.
 - Storm water separation study

Cleveland Innerbelt Study

- Completed by URS in 2007/2008.
 - Sub-surface utility files
 - Geotechnical reports in CCG4 since some work was believed to have been completed under an advanced authorization for the curve. B&N to check with their Painesville Office on the availability of this work.
 - Include any purchased information (e.g. GIS, traffic info)
 - Information listed by Toombs in agenda for meeting
- Review any missing items from the CCG1 submittal and include these items on discs for CG1-CG7
- **Schedule**
 - Priority on CCG2
 - Submittal Date: April 1, 2011 for all deliverable discs including a contract disc for CCG1.
- **Contract**
 - ODOT will look to retain B&N's services during the pre-bid phase for CCG2-CCG3
 - Current contract allows for answering of questions to all contracts except CCG1 (CCG1 is no longer in pre-bid phase)
 - Mat says he can authorize this task after checking on whether it has encumbered funds
 - Mat also indicated that there potentially could/should be an on-going services contract for CCG1 attached to the PID (and maybe attached to each PID for CG2-CG7; potentially an if-authorized task since B&N may compete for these contracts

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AGENDA

- Summary of Deliverables
- Outdated information based on current construction contract groups
 - Cost estimates
 - MOTAA exhibits
- Summary of Outstanding Items to be completed during Detailed Design
 - NEORS
 - Individual documents for each current contract group
- Submittal Schedule
- Next Steps
- Adjourn

Cleveland Innerbelt Study – Summary of Deliverables

Overview of Contract Groups

- *Contract Group 1* – WB I-90 across Cuyahoga River
- *Contract Group 2* – EB I-90 across Cuyahoga River
- *Contract Group 3* – Remainder of Central Interchange, including I-77 north of I-490 interchange
- *Contract Group 4* – Innerbelt Curve
- *Contract Group 5* – Innerbelt Trench
- *Contract Group 6* – I-77 corridor south of I-490 interchange
- *Contract Group 7* – I-71 SB at the Jennings Freeway interchange

Content of each Contract Group submittal package

- Microstation proposed base files (DGN)
 - Plan view
 - Profile view
 - Cross sections
 - Superelevation shape plan view
 - Autoturn analysis plan view
 - Typical sections
 - Pattern line plan view
- Microstation proposed sheet files (DGN)
 - Plan sheets (roll plots)
 - Profile sheets (roll plots)
 - Cross section sheets
 - Typical section sheets
- Existing Survey files (for entire project, not broken up by individual contract group)
 - Existing topographic basemap (DGN)
 - Existing contour basemap (DGN)
 - Existing digital terrain model (TIN)
- Calculations
 - Superelevation calculations
 - Spiral length calculations
- Cost Estimates/Quantities
 - Cost estimates
 - Microstation (DGN) shape files to detail quantities and support cost estimates
 - *Outdated based on current contract group designations*
- MOTAA
 - MOTAA pdf exhibits
 - Microstation (DGN) files for the MOTAA submission per contract group
 - *Outdated based on current contract group designations*
- DVD Containing the FEIS
 - Complete IJS (including the HCS files) as an appendix

Cleveland Innerbelt Study – Summary of Deliverables

- Complete DEIS as an appendix
- Complete CAS as an appendix
- Complete Strategic Plan as an appendix
- CD containing the BMP report

For Contract Group 4 (Innerbelt Curve), the following will also be included:

- DLZ report on Easterly Interceptor
- *Need status from Dave Lastovka. We submitted it to Dave who submitted it to NEORS. Have we seen comments back from NEORS?*

For Contract Group 5 (Innerbelt Trench), the following will also be included:

- Wall study for JJC and supporting boring reports
- Wall study for Mather Mansion and supporting borings reports

Cleveland Innerbelt Study – Summary of Outstanding Items

Contract Group 2

- When this project's detailed design begins, refer to what was actually constructed as part of CCG1 (I-90 WB Bridge). The configuration of the Abbey/Fairfield SB Connector Roadway after the completion of CCG1 should be reviewed to ensure that what is anticipated construction in CCG2 can be accomplished. Similarly, the parking lot being proposed in CCG1 under the I-90 WB bridge north of Fairfield/south of Abbey should be reviewed because proposed piers for I-90 EB bridge could be in conflict with final parking lot layout.
- Currently, the CCG2 plans show a maintenance of traffic (MOT) retaining wall being constructed between Temporary I.R. 90 EB and Ramp B3. This is needed because the intention was to maintain as much access during Contract Group 2 as possible to the downtown CBD. The MOT retaining wall allows for the construction of Ramp B3, allowing traffic to access Ontario Street from I-90 EB. It is intended that this MOT retaining wall will need to be removed and rebuilt during Contract Group 3 construction. This situation should be reviewed prior to the start of CCG2 design to determine if this MOT wall is still desired. This review will most likely require a meeting with the City of Cleveland traffic staff as well as operational analysis performed of the corridor during construction if Ramp B3 was removed until Contract Group 3.
- Once Structure Type Studies have been performed (scheduled to be completed during the next steps of the PDP process for this project) the location of the bridge limits will need to be revisited at the following locations:
 - *I-90 EB over Fairfield Avenue* – current CCG2 plans show a single bridge structure for I-90 EB over Fairfield Avenue, West 14th Street connector, Abbey Avenue, and the Cuyahoga River. This differs from what is shown for CCG1's I-90 WB bridge. If CCG2's bridge layout was to match CCG1's bridge layout, this would result in about a 100' of earth boxed in between two structures. Once type studies are performed, this area should be revisited to determine if two structures is preferred to a single structure.
 - *I-90 EB over Kenilworth Avenue* – current CCG2 plans shows I-90 EB superelevation transition occurring across the I-90 EB over Kenilworth Avenue bridge. However, the length of this bridge was approximated at this time because type studies have yet to be performed. Once type studies are performed, the location of the superelevation transition can be optimized by varying the amount of superelevation on the curve from 50-70% as required by ODOT L&D Volume 1. This bridge location should also be reviewed to ensure that the flat spot of the I-90 EB rotation is not located on the bridge. At this time, the flat spot is anticipated to be located off of the bridge about 15' north of the northern bridge limits.
 - *I-90 EB over Fairfield Avenue* - current CCG2 plans shows I-90 EB superelevation transition occurring across the I-90 EB over Fairfield Avenue bridge. However, the length of this bridge was approximated at this time because type studies have yet to be performed. Once type studies are performed, the location of the superelevation transition can be optimized by varying the amount of superelevation on the curve from 50-70% as required by ODOT L&D Volume 1. This bridge location should also be reviewed to ensure that the flat spot of the I-90 EB rotation is not located on the bridge.

Cleveland Innerbelt Study – Summary of Outstanding Items

At this time, the flat spot is anticipated to be located off of the bridge about 19' south of the southern bridge limits. Also once type studies are performed, the I-90 EB profile should be reviewed to ensure that the low point of the sag vertical curve is off of this structure. Current plans show this low point located south of the southern limit of the bridge.

- Due to the planning level of survey used on this study, all horizontal alignments and vertical profiles should be reviewed to tie-in to existing facilities more accurately than currently shown.

Cleveland Innerbelt Study – Summary of Outstanding Items

Contract Group 3

- Design exceptions will need to be filed for Ramp H3 under the current design for:
 - Design speed (20-mph for first curve instead of 30-mph required) due to first curve not getting achieving 30-mph superelevation rate
 - Superelevation rate (meets 20-mph for first curve instead of 30-mph required)
 - Superelevation transition rate (135:1 for 20-mph instead of 152:1 for 30-mph required)
 - Horizontal Degree of curve (meets 20-mph for first curve instead of 30-mph required)
 - This is because of the original FHWA requirement to maintain a minimum 100' distance from the intersection to the nose of the gore along Woodland Avenue. If this requirement is not necessary to hold, then this particular design exception can go away as the curve radius can be increased to 30-mph design.
- One ramp vertical grade exceeds +5.00%.
 - Ramp H3 – current plan shows a vertical grade on this ramp of +5.50%, about 84 feet long. This design is as it is to minimize impact along I-77 (hold proposed elevations close to the existing elevations) and maximize the weave length between Ramp H3 and Ramp H6 (currently the LOS of the weave is D in the AM Peak and B in the PM Peak).
- Mainline vertical profile exceeds +3.00%
 - I-90 WB – current plan shows a vertical grade on this ramp of +3.50%, about 1,100 feet long. This design is as it is due to having to go under East 22nd Street and over East 14th/18th Street. Once structure type studies are performed on the East 22nd Street bridge over I-90 and the I-90 WB bridge over East 14th /18th Streets (scheduled to be completed in the next phases of the design process) the profile for I-90 WB should be reviewed for potential reduction in this grade.
- Once the structure type study has been performed for the Ramp A2 bridge over Ramps A3, B5 and I-90 (scheduled to be completed in the next phases of the design process) the length of the crest vertical curve should be reviewed and optimized to provide the maximum stopping sight distance possible so that the diverge to Ramp J2 is clearly visible. Once the structure depth is determined, it can be determined if the vertical curve can be lengthened, thus lowering the profile over these roadways.
- The radius used in the design of the first curve of Ramp A1 and the last curve of Ramp B4 is 145'. This is good for 25-mph design per ODOT's L&D Manual. ODOT provided a comment that these curves radii should be increased to 150', per AASHTO minimum standards for 25-mph. This was not done during this step of the project, but should be reviewed during future steps to see if revising them is possible.
- Once the structure type studies have been performed (scheduled to be completed in the next phases of the design process) the vertical geometrics of Ramp B6 and Ramp J2 should be reviewed to determine if the low point along the proposed profile can be further separated from the bridges to optimize the design.
- Several comments were provided by ODOT asking that the 3.20% grade break be removed from the proposed profiles when they crossed an intersection. It was determined that this revision to

Cleveland Innerbelt Study – Summary of Outstanding Items

the profile should occur during future phases of the design process when the intersections can be designed and detailed. The locations that received specific comments include:

- East 22nd Street at Carnegie Avenue (around station 37+30)
- East 9th Street at Ontario Street (around station 30+00)
- East 14th Street at Orange Avenue (around station 14+75)

All proposed profiles through intersections should be reviewed to ensure that the proposed grade breaks are within ODOT requirements.

- Superelevation transitions currently occur on the I-90 structures over East 9th Street and East 14th Street. The structure type studies for these two bridges are scheduled to be completed during the next phases of the design for this project. This work will determine the longitudinal limits of the proposed structures. The design of both the vertical geometry and superelevation transitions should be reviewed and optimized once the structure type studies have been completed for these structures.
- There is an outstanding comment provided by ODOT asking that the spiral length at Ramp B5's diverge from Ramp B6 be revised from 150' to 200'. At this time, the spiral length was not revised. This should be reviewed and potentially adopted during future phases of the design process for this project.
- Review a potential utility conflict of the AT&T ducts that cuts across the Central Interchange between East 9th Street and East 22nd Street. They are active. AT&T noted that they did not appear to be in conflict with the design, but attention should be paid to this utility during design.
- Due to the planning level of survey used on this study, all horizontal alignments and vertical profiles should be reviewed to tie-in to existing facilities more accurately than currently shown.

Cleveland Innerbelt Study – Summary of Outstanding Items

Contract Group 4

- **East 38th Street** - The proposed profile of East 38th Street utilizes a grade of 10.75%. This was done because it is a low-speed facility and every attempt was made to match the existing grade of East 38th Street before the roadway crossed the railroad tracks. It should be noted that this proposed grade closely matches the existing grade on this roadway.
- **CSX Railroad** – The proposed minimum offset from the south edge of pavement of South Marginal Road to the center of the northern-most existing railroad track is 21.48'. This measurement is based on the two existing tracks. The comment received from ODOT on this area stated that ODOT would need to forward this to the railroad for comment.
- **Drainage overflow pipes under the airport property** - Determination of the condition of the overflow pipes under the airport property was originally scoped to be part of the Innerbelt Curve Final Design project. Work was begun on this task under that contract and the location of the overflow pipes was determined (see attached graphic to the Response to Comments document). However, prior to undertaking the work of physically inspecting these pipes, which will require the use of a confined space dive team and remotely operated submersibles, this project was placed on hold and was never restarted. As this task was scoped to be completed as part of the Final Design Contract for the Innerbelt Curve, it is not part of the scope of this project.
- Due to the planning level of survey used on this study, all horizontal alignments and vertical profiles should be reviewed to tie-in to existing facilities more accurately than currently shown.

Cleveland Innerbelt Study – Summary of Outstanding Items

Contract Group 5

- **Ramp D5** - The proposed profile of Ramp D5 (Superior Avenue to I-90 WB) utilizes a grade of -5.28%. This was done because the horizontal design of this ramp was completed to avoid pushing the deceleration taper of this ramp in the entrance terminal with I-90 WB beyond the gore location with Ramp D6 (Chester Avenue to I-90 WB ramp). And the location of Ramp D6 was determined in an attempt to maximize the weave distance between this ramp and Ramp A2 (I-90 WB to I-77 SB) designed in CCG3. Due to the short horizontal distance of Ramp D5, and the need to keep the roadway up over the anticipated concrete arch structure over Ramp D3 (I-90 WB to Chester Avenue) designed in CCG4, the grade on this profile had to be designed with a value that exceeded the regulation 5% grade max. Once a structure type study is performed on the braid structure between Ramps D3 and D5, this grade issue should be re-visited.
- Due to the planning level of survey used on this study, all horizontal alignments and vertical profiles should be reviewed to tie-in to existing facilities more accurately than currently shown.

Cleveland Innerbelt Study – Summary of Outstanding Items

Contract Group 6

- Due to the planning level of survey used on this study, all horizontal alignments and vertical profiles should be reviewed to tie-in to existing facilities more accurately than currently shown.

Cleveland Innerbelt Study – Summary of Outstanding Items

Contract Group 7

Due to the planning level survey available for the Step 6 design of Contract Group 7, the following assumptions regarding the existing basemap and the proposed design were made:

1. The existing super elevation of IR 71 was designed based on the CUY-71-17.83 / CUY-76-12.76 plans from 1965. The super elevation transition location was estimated using the transition location and lengths provided in these plans.
2. The existing super elevation at the tie in point of Ramp J7 was estimated using the existing tin. Due to the location of the surrounding bridges and walls, there is a greater margin of error in the accuracy of the tin, influencing the existing super elevation information gathered from the tin.
3. With the lack of ground survey to verify the vertical clearance at the two-tier structure, the proposed ramp tied into the existing geometry prior to the existing two-tier structure in order to prevent any impacts to the structure due to violating vertical clearance minimums between the ramp and the structure.

Maintaining the maximum grade breaks at the gore location was a design issue with this contract group. The 5° 30' curve at the end of the gore where the proposed ramp tied into the existing roadway geometry was held to match the existing curvature of the ramp. In order to maximum the locations of the 5° 30' curve and the required super elevation rotation to 5.1% with respect to the gore location, the ramp was designed with a flat, 0° 47' curve that pulled the ramp away from the mainline prior to the gore, followed by a short tangent that tied into the 5° 30' curve. Providing the flat curve to pull the ramp geometry away from the mainline placed any grade breaks exceeding the maximum 5% within the gore area. Prior to the gore, all grade breaks between the mainline and ramp edge of pavements were less than the 3.2% maximum.

Within the gore, the maximum break of 5% was exceeded from Station 105+78.07 to Station 106+86.43. The steeper grade break was placed between the edge of pavement of the ramp (right side) and the edge of the gore as opposed to the edge of the mainline and the edge of the gore. Additionally, in order to lower and flatten the vertical geometry as much as possible, a successive grade break was placed within the gore between Station 106+86.43 and Station 107+68.68. From Station 106+86.43 to Station 107+06.44, this successive grade break is not 6' from the first grade break.

- For the vertical geometry, the horizontal limits of the ramp beyond the gore (restricted due to the unknown vertical clearance at the two-tier structure) limited the length of the vertical curve that could be provided. The proposed curve does not meet the minimum three times the design speed as outlined in the ODOT Location and Design Manual, Volume 1, but does provide a k-value for the proposed design speed of 45 mph. The curve length is maximized between the tie in points.

Due to the planning level of survey used on this study, all horizontal alignments and vertical profiles should be reviewed to tie-in to existing facilities more accurately than currently shown.