Roadway Design Staff Meeting
Roadway Design Unit Conference Room

January 5, 2012
10:00 A.M. – 12:00 P.M.

Corridor Modeling

Jim McMellon presented the group with an updated overview of Corridor Modeling and discussed the phase out of criteria (attached). Oak Thammavong also reviewed a video presentation from Bentley of upcoming changes in Microstation SS3 (video available on the S:\Share\SS3Demo\SS3Demo.html).

Performance Dashboard and Appraisal

Glenn Mumford reviewed the January 5, 2012 letter (attached) from Jay Bennett concerning the Performance Dashboard and Appraisal Evaluations for 2011. He noted the key dates required for closing out the 2011 annual performance management cycle and starting the 2012 cycle. Glenn also discussed that each employee should have an Employee Training & Development Plan initiated for the 2012 calendar year to coincide with the 2012 start-up PDA.

Proposed Right of Way and Temporary Construction Easements on 25% To Hydro Plans

Jay Bennett discussed the email dated January 3, 2012 (attached) from Roger Thomas to the Project Engineers in regards to Adding Tentative R/W and Temporary Construction Easement (TCE) limits to the To Hydro plans at the 25% Right of Way Plan Development stage. By providing this information, it will allow the Utilities Unit to coordinate with the utility companies earlier in the design process and help to identify areas where Permanent Utility Easements need to the established. The Tentative R/W and TCE areas need to represent what we think will be required for the project without having the slope and hydraulic design recommendations.

Request for Permit Drawings

After the 12 Month Design Status Meeting, the Natural Environment Section will send out a request for permit drawings. An email notification from the Project Engineer or Project Design Engineer noting where the current half sized PDF roadway design files resided and they are ready for the permit package to be prepared should be sent to Elizabeth Lusk, the NES contact and carbon copy Kim Annis.

Original Signed by Jay A. Bennett 03/22/12

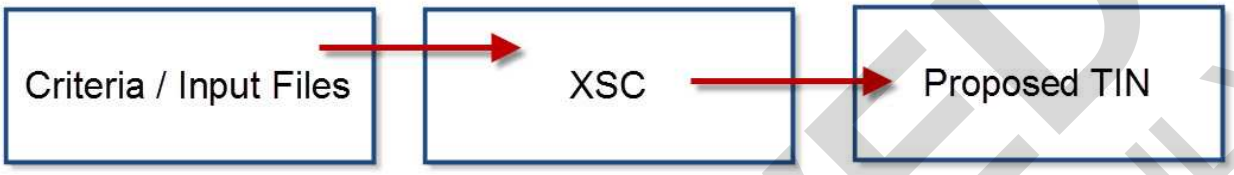
Minutes Approved By:_____ Date: _____

Jay A. Bennett, PE
State Roadway Design Engineer

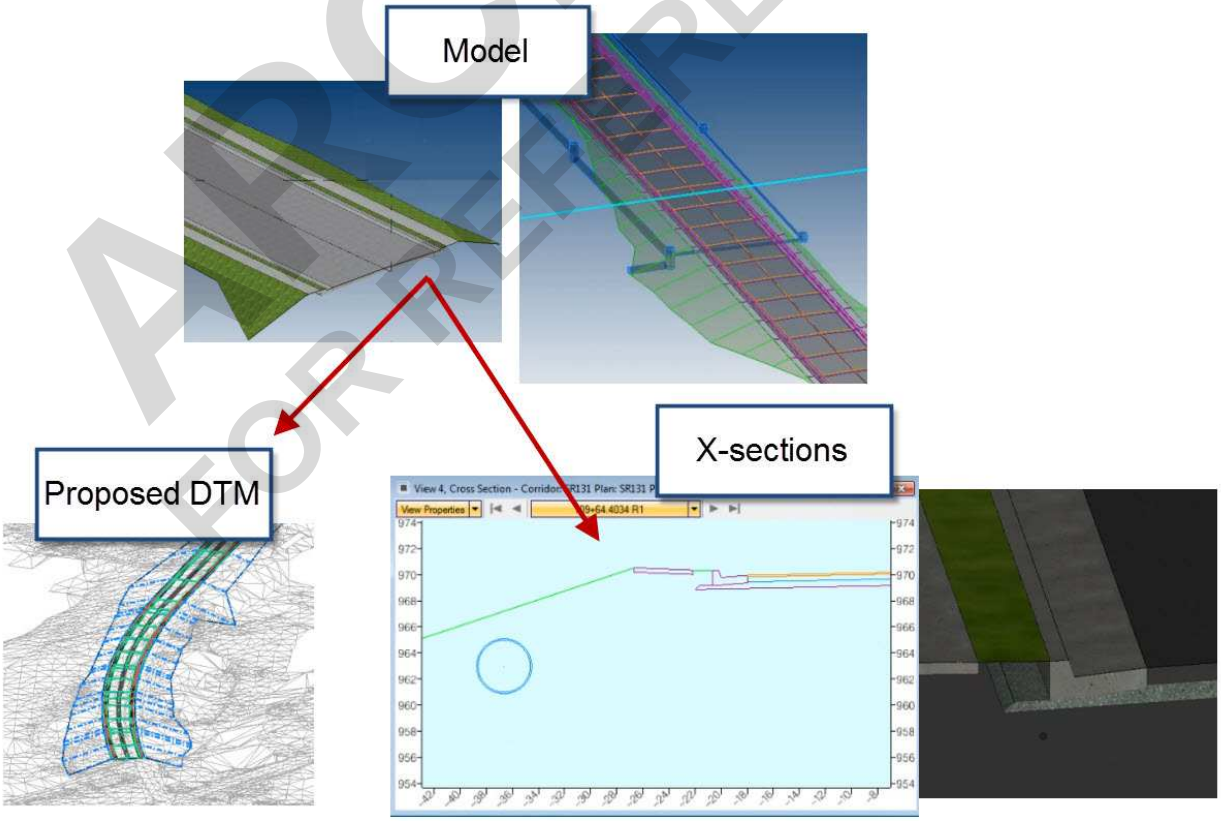
Criteria Phase Out & Project Impact

Background

- **Criteria**
  a. XSC from Criteria
  b. Old RDM ADSS & FDSS Standards
  c. 2006 Method of Shoulder Construction
  d. Proposed TIN created from X-Sections



- **Corridor Modeling**
  a. XSC from DTM/DGN Model
  b. New RDM ADSS & FDSS Standards (and future RDM changes)
  c. 2012 Method of Shoulder Construction (and future RSD changes)
  d. Proposed TIN from DTM/DGN Model



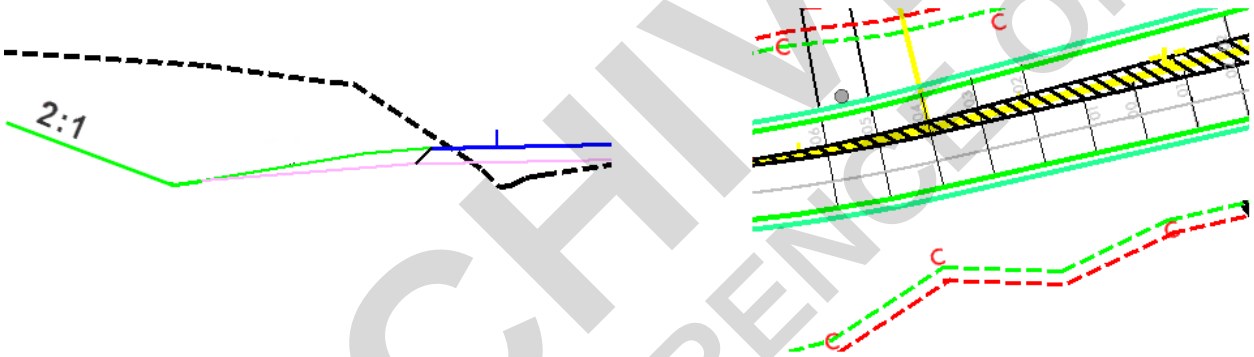
Criteria Phase Out & Project Impact

Project Impact Considerations

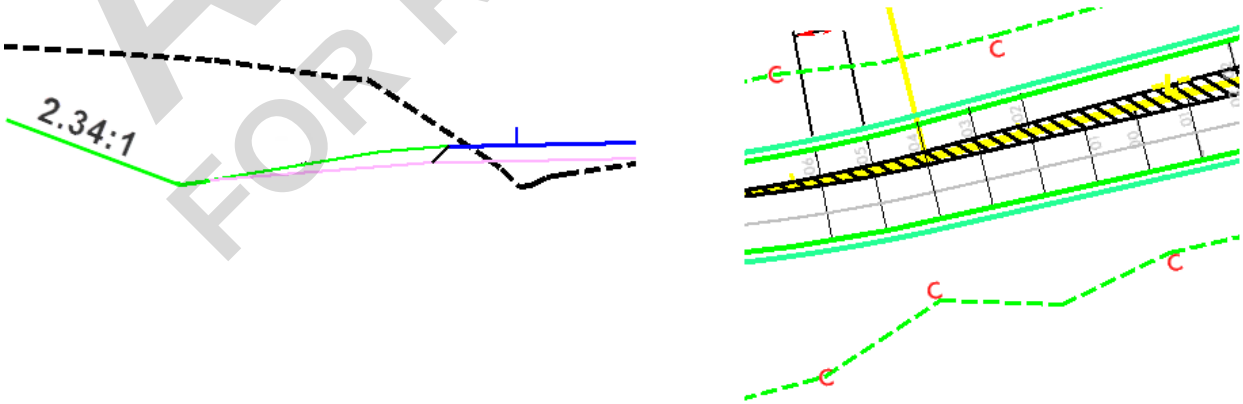
The major impact to consider when converting a project from Criteria to Corridor Modeling is the 2012 Standard Drawings for Method of Shoulder Construction (Shoulder Rollovers) STD. 560.02 and Roadway Design Manual changes to the Arterial and Freeway Design Side Slopes (Part I, 1-2A) are incorporated into modeling and not Criteria.

To maintain the same "footprint" for Criteria projects to Corridor Modeling would mean either:

1) holding your side slopes will move your slope stake limits or



2) holding your slope stake limits may change your side slopes.



Criteria Phase Out & Project Impact

Benefits of Corridor Modeling

- Industry Direction - Bentley Criteria support is very low in their priority. Also GPK and COGO will be replaced by Civil Geometry (DGN base).
- Cross sections are a byproduct of the Civil Model and generated from it.
- Does everything Criteria did and more (interchange shear points, gore areas, onsite detour ditches, etc.), with less time.
- Estimates/quantities will come from the Civil Model reports.
- Changes such as alignment shifts are incorporated automatically.
- TINs are automatically created.
- Downstream users/Units, such as Hydro, Utilities, Roadside Environmental, and Geotech, get a better product.
- Key design aspects and constructability issues, such as sight distance and vertical clearance, are identified early with the model inspection and clash detection simulations before the project is sent to construction.
- The Department gets a better product overall.

Misconceptions of Corridor Modeling

1. **False: The option to use Criteria or Corridor Modeling on new projects.**
   Truth: All new projects should use Corridor Modeling to generate cross sections. PEFs are aware of this requirement.

2. **False: Use Criteria at first and finish with Corridor Modeling at the end.**
   Truth: Cross section side slopes and slope stake limits often will not match between the two methods due to the standards differences.

3. **False: Corridor Modeling is still in developmental stage.**
   - Template library created in the summer of 2008
   - "Intro to Corridor Modeling" Class Completed
   - "Intermediate Level Corridor Modeling" Class Completed
   - Several Workshops Completed (with the CM Implementation group)
   - Online Roadway website dedicated to CM Created and Updated

Criteria Phase Out & Project Impact

- Current template library contains advanced templates for divided facilities, raised medians, interchanges (ramps and loops), DDI, and roundabouts.
- Phasing out Criteria to cut cross sections (the only preferred way to cut cross sections). NCWedge has already been phased out (no longer supported by NCDOT EAD group).

4. **False: Cannot add Hydro ditches to the model.**
   Truth: There are two ways to incorporate hydro ditches into the model. Both methods work and are used on the floor. See **Chapter 8 - Lateral and Roadway Ditches** online for further details.

5. **False: Other Units cannot work in the model.**
   Truth: Downstream users and Units can and will work in the 3D model environment. We need feedback from them.

6. **False: Modeling takes too long.**
   Truth: How much effort put into the model depends on how accurate you want the cross sections to be. Bridges skews, culvert design, and at-grade intersection modeling were never produced with traditional Criteria, and thus it is not expected to be modeled correctly and completely.

7. **False: I feel more comfortable with Criteria.**
   Truth: Experienced Criteria users still make simple mistakes, e.g. “o” instead of “0”, wrong DGN file path, PGL chains on undivided facilities, etc.

8. **False: I just wait till they come out with SS3 to learn Corridor Modeling.**
   Truth: All of the lessons learned up to SS2 will continue to be expanded on SS3. Corridor Modeling in SS2 is a prerequisite for SS3.

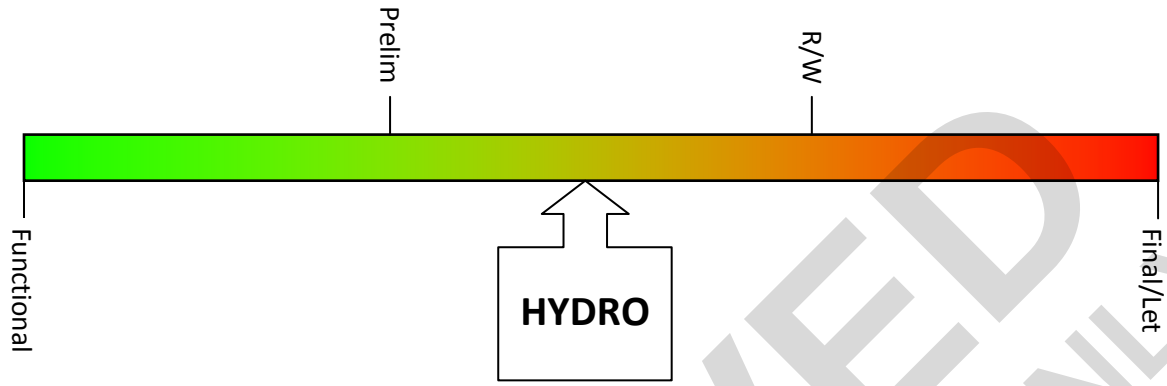
9. **False: The manuals and materials online are out of date.**
   Truth: A few dialog boxes have changed between versions of Microstation/Geopak, but the overall concept of Corridor Modeling did not.

10. **False: Corridor Modeling is a fad. It’s going away. Hold it off till I can retire.**
    No comment.

Criteria Phase Out & Project Impact

Recommendations – Guideline for Corridor Modeling Projects

Project Schedule (For New Project or Current Criteria Project)



*** NOTE**: These recommendations do not apply if Corridor Modeling has already been used through the life of the project.

Ideal (Before Hydro)

- If Project has not gone to Hydro (Functional / Preliminary Design up to Hydro Phase). Use Corridor Modeling to get cross sections and slope stakes.

Proceed with Caution (After Hydro but before Right of Way)

- Corridor Modeling may be used, but with caution:
  - Due to differences between Side Slope & Shoulder Construction Standards (2006 & 2012), Corridor Modeling cross sections may not match Criteria cross sections.
  - If the Project schedule is delayed or pushed back, then it could allow Criteria designed Projects to be redesigned using Corridor Modeling. Hydro also may need to review or redesign.

Not Recommended (After Right of Way)

- It is not recommended to use Corridor Modeling after Right of Way Phase. Model (TIN) should be generated from Criteria Cross Sections.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

MEMO TO: Project Engineers
Project Design Engineers

FROM: Jay A. Bennett, PE
State Roadway Design Engineer

DATE: January 5, 2012

SUBJECT: Performance Evaluations for 2011
Performance Dashboard and Appraisal (PDA)

The 2011 annual performance management cycle ended December 31, 2011. All supervisors are required to meet with each of their employees to appraise his or her performance for the period from April 1, 2011 to December 31, 2011. Engineering Associates and Co-op students will continue to be assessed by the usual evaluations at the end of their stay in the Unit.

Before discussing the end of cycle evaluations with their employees, the Project Design Engineers need to discuss their squad's ratings with their Project Engineer. The Project Engineer should then review all of his or her group's individual ratings with their Roadway Design Regional Manager. This series of brief review meetings will ensure that the applicable managers are in agreement with the evaluations, and that the evaluations are administered consistently across the Unit. After the meeting with the Regional Manager has taken place, the supervisors are free to go over the evaluation forms with each of their employees.

As part of the final review with each employee, supervisors needs to complete Section A (Performance Metrics), Section B (NCDOT Values) and Section C (Year End Appraisal). An Individual Development Plan may be warranted to help improve individual performance, or to help someone prepare for their next position. A Corrective Action Plan may also be warranted if serious non-adherence to NCDOT Values has occurred during the review cycle. All of these forms are on the Share Drive in the Performance Dashboard and Appraisal\PDA Forms\2011 folder.

Attached is a copy of the Addendum to Performance Dashboard and Appraisal that should be attached to each evaluation at the end-of-cycle review. This addendum explains the employee's right to appeal. I have also attached information explaining the NCDOT PDA rating scale.

Raw PDA numbers for each Project Engineer Group (based on the April 2011 and December 2011 data cube reports) is due to the Roadway Design Regional Managers by Friday, February 3, 2012. This information is needed to complete the overall PDA for the Unit.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN UNIT
1582 MAIL SERVICE CENTER
RALEIGH NC 27699-1582

TELEPHONE: 919-250-4016
FAX: 919-250-4036

WEBSITE: WWW.NCDOT.ORG/DOH

LOCATION:
CENTURY CENTER COMPLEX
BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC

In order for the ratings of all employees to be entered into NCDOT Human Resources' computer system on schedule, the review meetings must be conducted, the final PDA forms must be signed, and everything must be turned in to your respective Regional Manager by Friday, February 24, 2012.

No later than Friday, March 2, 2012, each employee should have a PDA in place for the next review cycle. By this same date, each employee should also have an Employee Training & Development Plan initiated for the 2012 calendar year. (See the attachment from Bev Saylor, NCDOT Training Coordinator, regarding the requirements for this new form.) Turn in all of your 2012 start-up PDA and Employee Training & Development Plan forms to your Regional Manager by Wednesday, March 7, 2012. For the upcoming PDA cycle, please use the forms that will be located on the Share Drive in the Performance Dashboard and Appraisal\PDA Forms\2012 folder.

The Performance Dashboard and Appraisal system is a results-based tool designed to support a work culture in which clear performance expectations are established, and then employees are held accountable for achieving the expected results. I appreciate your support as the Roadway Design Unit continues to strive to make our organization a place that works well while also being a great place to work.

If you have any questions, please contact me or your Regional Manager.

JAB/gwm
Attachments

cc: Glenn Mumford, PE
Roger Thomas, PE
Doug Taylor, PE
Patsy Stephenson

Bennett, Jay A

From: Thomas, Roger D
Sent: Tuesday, January 03, 2012 8:20 AM
To: Roadway PE
Cc: West, Anthony C; White, Allison K; Payne, Bruce B; Key, Bryan C; Robinson, Brian; Walston, Clayton F; Byrd, Davidian; Gardner, Danny; Younis, Imad T; Lansford, John; Mcmellon, James A; Tyson, Jeanie; Moore, Kevin E; Moore, Lee A; Little, Michael W; Mahjoub, Mohammed E; Hussey, Mark R; Boayue, Nya K; Chan, Paul K; Lancaster, Susan C; Kendall, Steve D; Stclair, Samuel L; Goins, Tim D; Duncan, Thad F; White, Tatia L; Best, Wayne T; Sykes, Dewayne L
Subject: Adding Tentative R/W and Temporary Construction Easement Limits to 25% THYD Plans

Project Engineers,

The Utilities Unit has requested that we show the tentative proposed R/W and Temporary Construction Easement Limits on our preliminary design plans at the 25% THYD submittal stage. We know the right of way and easement information will not address all of needs for hydraulic design, but it will give all units a good place to start. By providing this information, it will allow the Utilities Unit to coordinate with Utility Companies earlier in the design process. This earlier coordination in turn will help with reducing the time required to receive the Permanent Utility Easement recommendations after the Hydraulic Recommendations are incorporated and the proposed R/W and TCEs have been adjusted. The goal is to have the PUEs added to the preliminary plans prior the going to the Final Design Field Inspection.

Please implement this process change immediately for projects that have not been submitted to Hydro. We realize that you may have projects close to the THYD submittal stage. For those projects, it will be okay to add the proposed R/W and TCEs to the project plans and provide a separate submittal to the Utilities Unit soon after the THYD submittal.

If you have any questions in regards to this request, please let me know.

Thanks,
Roger