

Instructions: Use this guidance for 3R projects with aggregate surfacing after a specific type of 3R improvement has been identified during scoping to determine recommended practices for incorporating that type of improvement into the PS&E. Refer to the PS&E recommendations associated with the proposed type of 3R improvement. The recommendations apply at locations where the type of improvement is proposed. If geometric improvements are proposed for the majority of the project, then consider using a reconstruction approach instead of these guidelines. If the recommended practices for each category are not used, it should be viewed as a risk based decision in consultation with the CFT and documented as such, identifying the associated risks and mitigation strategies. If the recommendations are not followed, potential risk mitigation strategies may include the following: 1) Extended scoping duration to allow for a more thorough investigation of the site including more frequent roadway width measurements, roadside features, etc. 2) Check measurements on site visits to ensure proposed widths don't result in unexpected impacts. 3) Ensure Plans, SCR's clearly identify the work required by the contractor if no survey is obtained (e.g., surveying, designing, reviews req'd by Gov't, etc.) and how this work will be paid.

3R Project Type	Aggregate Only	Widening	Minor Horizontal/Vertical Alignment Adjustments	Comments
<b>Type Description</b>	All improvements are on the bench intended to rehabilitate the aggregate surfacing and substantially match existing roadway width and cross slope. Includes restoring normal cross slope. No widening. No horizontal/vertical alignment adjustments.	Roadway widening that can be attributed to a wider lane or shoulder than existing. Includes situational widening where the proposed roadway width equal the existing roadway width throughout the project, but there are spot locations where there is narrower bench width that must be widened to accommodate the proposed roadway width. This category includes widening to one or both sides of the roadway to obtain a consistent roadway width. Widening that is used in conjunction with horizontal/vertical alignment adjustments is not included in this category.	Any horizontal/vertical alignment adjustments. Engineered horizontal/vertical alignments are provided in adjustment areas.	
<b>Typical Pavement Widening</b>	No widening except what is required to construct acceptable foreslope.	Shoulder widening, on or off the bench. Widening is consistently applied to one or both sides. If widening is anticipated to taper or shift from one side to the other, it falls under the minor horizontal/vertical alignment adjustments category.	May include widening or spot widening along with horizontal and vertical adjustments.	
<b>Structural Section (applies to situations with new AB surfacing)</b>	Recondition existing + New AB surfacing	New AB Surfacing, Recondition existing + New AB surfacing	New AB Surfacing, Recondition existing + New AB surfacing	
<b>Existing Alignment Changes</b>	No changes to existing horizontal or vertical alignment.	No changes to existing horizontal alignment.	Minor horizontal adjustments. Engineered horizontal is provided. This includes spot improvements such as flattening an isolated horizontal curve.	
<b>Profile</b>	Match existing, plus new AB surfacing depth.	No change to vertical alignment. Match existing, plus new AB surfacing depth.	Engineered vertical alignment is provided where adjustment are made.	
<b>Superelevation</b>	Match existing superelevation in horizontal curves.	Match existing superelevation in horizontal curves.	Horizontal/vertical adjustments dictate that new superelevations are developed/developed and provided.	From PDDM, p. 9-17: On 3R projects, provide proper superelevation and transitions. When standard superelevation rates are impractical, the highest achievable rate applies, subject to approval through the design exception process. Where exceptions are necessary, speed studies should identify locations for speed and warning sign installations
<b>Earthwork</b>	No excavation or embankment.	Earthwork required for widening. Includes excavation of an existing slope to make room for widening as well as placing embankment if there is not room on the bench for widening.	Likely includes earthwork depending on extent of horizontal/vertical adjustments	

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<b>Drainage Culverts</b>	Varies, typically culverts replaced/upsized in same location	Culverts replaced or extended depending on proposed ditch grades.	Culverts likely replaced with changes to vertical alignment. Culverts potentially move based on changes to profile/ditches and low points.	The condition of the existing culverts should be assessed during scoping. The determination if culverts need to be replaced should be made at the scoping review based on stability of existing culvert condition and signs of capacity problems.
<b>Drainage Ditches</b>	Either no changes to ditch locations or ditch reconditioning or grading may be required.	New alignment of ditches where widening takes place.	Revisions to the ditches based on road geometry	
<b>Utilities</b>	Possible changes to utilities due to change in road surface elevation.	May require earthwork, therefore obtaining utility information is desirable.	May require earthwork, therefore obtaining utility information is desirable.	All existing utility information should be compiled as early as possible to determine any potential conflicts. The decision to obtain utility information should be consistent with survey/topographical information. Determine if additional underground utility survey (e.g., potholing) will be necessary as early as possible.
<b>Guardrail</b>	Guardrail and/or terminals replaced with no or minor work off of bench. May need spot embankment widening for terminals.	Guardrail and/or terminals replaced with no or minor work off of bench. May need spot embankment widening for terminals.	Guardrail and/or terminals replaced with major work (excavation/embankment) off of bench in a few spot locations	Determination of guardrail conformance to the current standard should be made at the scoping review to determine project scope.
<b>Clear Zone</b>	Typically not addressed unless there is a specific safety issue.	The clear zone width may be determined and documented on a project-by-project basis. Where feasible and environmentally acceptable, recommended clear zone width for the project will be constructed.	The clear zone width may be determined and documented on a project-by-project basis. Where feasible and environmentally acceptable, recommended clear zone width for the project will be constructed.	Determination of clear zone infractions should be made at the scoping review. The scope of work should then determine the detail required to fix any clear zone issues
<b>Sight Distance</b>	Typically not addressed unless there is a specific safety issue.	Typically not addressed unless there is a specific safety issue.	Typically not addressed unless there is a specific safety issue.	Sight distances can be field checked and documented when survey is not required. Where improvements are proposed to increase SSD, they usually include major shifts to horizontal/vertical alignment and therefore should be considered spot 4R improvements.
<b>Geotechnical</b>	Geotechnical work may or may not be included. Examples of scope items include rockfall ditches, subexcavation, slope scaling.	Geotechnical work may or may not be included. Examples of geotechnical scope items include locations of small cuts/fills, slope stabilization, small walls, underdrains, rockfall ditches, subexcavation, slope scaling.	May include spot locations for geotechnical scope elements such as walls, underdrains, RSS, etc.	Geotech scope of work may be independent of roadway work. Typical items vary.
<b>Cultural and Environmental Resources</b>	No impacts off of bench	Possible impacts throughout widened sections.	Possible impacts throughout project	Cultural and environmental resources are typically GPS'ed by the resource specialist. Areas without GPS reception need to be marked prior to surveying. Accuracy requirements must be mutually agreed. Not all GPS'd data will have the same accuracy depending upon the equipment and the technique employed.

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<b>Recommendations</b>				
<b>Typical Section template</b>	Aggregate Only Templates ("3R_typ_templates.pdf")	Widening Template ("WideningTemplate.pdf")	Minor Horizontal/Vertical or Combination Template ("Horiz_vertTemplate.pdf")	Modify typical section templates provided to delete the pavement section for projects with aggregate surfacing.
<b>Pay Items:</b>	See "CFL Engineer's Estimate Manual" for more information and guidance on specific pay items within each section shown below.	See "CFL Engineer's Estimate Manual" for more information and guidance on specific pay items within each section shown below.	See "CFL Engineer's Estimate Manual" for more information and guidance on specific pay items within each section shown below.	
<b>Survey</b>	15210-3000 Centerline, verification and staking (Mile)	15225 Clearing and 15236 finish grade surveying (Mile)	15225 Clearing and 15236 finish grade surveying (Mile)	
<b>Reconditioning</b>	303, Roadway Reconditioning (Mile) and/or Ditch Reconditioning (Lnft or Mile)	303, Roadway Reconditioning (Mile) and/or Ditch Reconditioning (Lnft or Mile)	303, Roadway Reconditioning (Mile) and/or Ditch Reconditioning (Lnft or Mile)	
<b>Structural Section</b>	301 or 302 (Ton) for new AB Surfacing	301 or 302 (Ton) for new AB Surfacing	301 or 302 (Ton) for new AB Surfacing	
<b>Cross-Sections</b>	Not included in PS&E	Provided as part of PS&E package. Cross sections show proposed aggregate surfacing across entire roadway width and structural section of widening.	Provided as part of PS&E package. Cross sections show structural section for entire roadway width.	
<b>Type of Staking Reports and 3D model</b>	Not included in PS&E	Provide subgrade template and blue top reports for the widened area and blue top report for the existing pavement. Provide the 3D model to the contractor.	Subgrade template and blue top report for entire roadway width. Provide the 3D model to the contractor.	
<b>Typical Survey Method Required</b>	Wheel and tape, Resource grade GPS, Google Earth	Topographic survey. Need to consider the width of the proposed widening when determining survey limits. The width of the survey needs to extend an adequate amount outside of the proposed widening to account for proposed slopes. Typical features to survey include centerline, existing edges of roadway and ground shots outside expected widened section. Includes obtaining planimetric utility information.	Full topographic survey. Extents to be determined by Designers in consultation with PM and Survey based on extent of adjustments. Includes obtaining planimetric utility information.	Survey recommendations listed here are exclusive of other discipline needs, such as for drainage cross sections, etc. Designers to provide Survey with kmz showing survey limits.
<b>Earthwork Pay Items Included?</b>	No roadway excavation or embankment.	Yes, embankment and excavation required to construct the widened roadway (and associated ditches) are quantified and paid for using appropriate 204 pay items.	Yes, embankment and excavation required to construct roadway are quantified and paid for using appropriate 204 pay items.	Subexcavation may be included in any of the categories.
<b>Plan Sheet Description</b>	Plan/Plan Sheets, alignment, no curve data, use aerial.	Either Plan/Plan or Plan/Profile Sheets. Show proposed horizontal alignment at centerline, curve data, no superlevation. No superelevation diagram.	Plan/Profile sheets, proposed horizontal and vertical alignments are shown, curve data, superelevation diagram shown	