
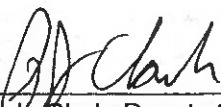


To: SUPERSEDED BY EB 09-004 EFFECTIVE 7/1/09		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 01-031
Title: 2R PROJECTS			
Distribution: <input type="checkbox"/> Manufacturers (18) <input type="checkbox"/> Surveyors (33) <input checked="" type="checkbox"/> Main Office (30) <input checked="" type="checkbox"/> Consultants (34) <input type="checkbox"/> Local Govt. (31) <input type="checkbox"/> Contractors (39) <input checked="" type="checkbox"/> Regions/Agencies (32) <input type="checkbox"/> _____ ()		Approved:  P. J. Clark, Deputy Chief Engineer, Design <div style="text-align: right;"> <u>01/04/02</u> Date </div>	

Administrative Information: This EI is effective for projects initiated after March 31, 2002. This EI does not supersede any older Engineering Instructions. However, the memorandum that issued SAFE TRAK (D.N. Geoffroy and M.J. Cuddy to Regional Directors, May 20, 1992) is hereby superceded. Chapter 3 of the Comprehensive Pavement Design Manual (CPDM) issued by EB 01-017 and the TEA-21 Design Related Approval Matrix issued by EI 01-016 are hereby modified.

This information will be added to the Highway Design Manual (HDM), CPDM, and TEA-21 Matrix in future updates. In 2002, HDM Chapter 7 will be updated to include guidance and requirements for 1R (single course resurfacing), 2R (simple 3R), and 3R (Resurfacing, Restoration, and Rehabilitation) projects. The 2R project process will be evaluated during this update of HDM Chapter 7.

Purpose: The purpose of this EI is to issue procedures for simple 3R projects, regardless of functional class and fund source. These simple 3R projects are defined as 2R in this document.

Transmitted Materials: 2R Project Policy with attachments and comparison of multi-course overlay programs.

Background: D. N. Geoffroy's and M.J. Cuddy's May 20, 1992 memo issued the Department's guidelines for the SAFE TRAK paving program. SAFE TRAK was a procedure to progress multiple-course pavement overlay projects that pass a safety screening defined in the above memo. While it has been a successful program, the SAFE TRAK procedure applies only to 100% State projects. In addition, because of the relatively long lifespan of a multi-course overlay, the Department is concerned that appropriate consideration be given to safety, capacity and context sensitivity before programming these projects. This is consistent with federal law in 23 USC 109, which states that it is the intent of Congress that non-freeway resurfacing, restoring, or rehabilitating projects shall be constructed to preserve and extend the service life of highways and enhance highway safety. Therefore, the attached 2R policy requires non-freeway 2R projects to follow the design criteria from the 3R standards referenced in HDM Chapter 7, Section 7.3 while using a modification of the basic safety package used for 1R projects.

For resurfacing, restoring, or rehabilitating projects on the Interstate System, Federal law requires the use of national standards. Therefore all 2R projects on Interstates and other freeways are to follow the federally approved standards in HDM Chapter 7, Section 7.2.

Contact: Design related questions regarding this EI should be directed to your Regional Quality Control Engineer. Further questions may be directed to your Regional Liaison Engineer in the Design Quality Assurance Bureau.

Comparison of Multi-Course Resurfacing Policies (Refer to 1R for single course overlays)

Issue	SAFE TRAK (1992)	2R	3R (1992)
Funding	100% State only.	State & Federal-aid eligible.	State & Federal-aid eligible.
Pavement	2 course overlay with two 40 mm (1.5") courses or T&L with 40 mm (1.5") top course. Not applicable to more extensive pavement work. Use pavement evaluation if required by CPDM Chapter 3 (formerly EI 92-15).	Inlays, overlays of more than 1 course and any depth, spot reconstruction. No large areas of replacement. Use pavement evaluation if required by CPDM Chapter 3 (formerly EI 92-15).	Inlays, overlays of more than 1 course and any depth, spot reconstruction. No large areas of replacement. Use pavement evaluation if required by CPDM Chapter 3 (formerly EI 92-15).
Safety Screening	Very restrictive. Must be below statewide rate, normal distribution, no unaddressed PILs, no clusters of fixed object or run-off-the-road (ROR) accidents, and rate of ROR must be low. Failure of any one criteria requires use of 3R Standards.	Simplified analysis if rates & distribution are normal, high accident locations are addressed, ROR can be mitigated. 2R project can be progressed if accident analysis done and all mitigation measures can be done by 2R work or the 2R work is needed as an interim/partial fix.	No screening. Entire project must have a full accident analysis.
Roadside work	Allowable. Non paving work must follow standard Department procedures.	Considered. References appropriate Department procedures.	Considered. References appropriate Department procedures.
Design Criteria	Design speed per 3R Standards. 3.3 m (11') combined lane and shoulder with 2.7 m (9') min. lane width in uncurbed areas. 3.0 m (10') min. width in curbed areas. Must superelevate to 3R standards (MUTCD Figure 231-1).	Design Criteria per 3R Standards for non-freeways. HDM §7.2 for freeways.	Design Criteria for Design Speed, SSD, VC, Cross slope, Radius, Maximum superelevation, Horiz. Clearance, Guide rail ht., 2.7 m (9') min. lane and 0.6 m (2') min shoulder width or existing width, whichever is greater. Widening up to TRB SR 214 allowed for non-freeways. Must superelevate to MUTCD Figure 231-1 values. HDM §7.2 for freeways.
Minor Operational Improvements	Not addressed. Non paving work must follow standard Department procedures.	Consider future (ETC+10) plans and congestion. Add signals, turn lanes, lengthen speed change lanes, but no new travel lanes.	Consider future plans and congestion (ETC+10 in congested areas). Add signals, turn lanes, auxiliary lanes, but no new travel lanes.
ROW	Not addressed. Non paving work must follow standard Department procedures.	De minimis acquisitions allowed.	Unlimited.
Drainage	Not addressed. Non paving work must follow standard Department procedures.	Closed drainage structures, culverts, clean and repair existing facilities. No restrictions on drainage work.	Closed drainage structures, culverts, clean and repair existing facilities. No restrictions on drainage work.
Bridge Work	Not addressed. Non paving work must follow standard Department procedures.	Element-Specific eligible bridge work is allowed.	Unlimited (e.g., bridge rehab/replace)
CSS and EI	Context Sensitive Solutions (CSS) and the Environmental Initiative (EI) are not addressed.	Compatible with instructions on CSS and EI. No public hearings. Public info meeting, press releases, and brochures.	Not addressed. CSS and EI are addressed in major rewrite. Public hearings ok.
Implementation	State forces, contract, etc. No specific guidance included. No discussion on staging work. Must explain work required but not included in SAFE TRAK project.	Unlimited - state forces, VPP, contract, multiple contracts, or any combination. Allows some roadside work to be implemented up to 18 months after resurfacing.	All work will be done by a single contract, unless documented otherwise.
Design Approval Document	No Design Report, but a memo (DAD) must be prepared with required checklists. Must explain work required but not included.	SSM/FDR using DPM with attached checklists. Must explain work required but not included. A form is provided as Table 2.	Standard Design Report using DPM.
Procedures	With the exception of new or worsened non-standard features on the Interstate projects ≥ \$1M, all approvals are made within Region since no Federal-aid is permitted.	Follow DPM and TEA-21 Matrix with some additional delegations to the RD for federal-aid NHS projects. Additionally, the Regions make direct submissions to FHWA, as required.	Follow DPM and TEA-21 Matrix. Projects to FHWA must go through Main Office Liaison.
Readability	17 pages.	10 pages.	18 pages. The draft rewrite to address CSS, EI, standardization, etc. is significantly longer.

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December 31, 2001

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1.0 INTRODUCTION

This document:

- defines 2R projects,
- outlines a screening process (Table 1) to identify 2R projects, regardless of functional class and fund source, and
- outlines the necessary analysis and documentation to scope and design 2R projects in an expedited manner.

2R projects are defined as simple 3R projects. 2R projects are multi-course resurfacing projects that may include: milling, superelevation, traffic signals, turn lanes, driveway modifications, roadside work, minor safety work, lane and shoulder widening, drainage work, sidewalk curb ramps, etc.

2R projects do not include:

- new travel lanes
- extensive pavement reconstruction
- bridge work (other than element-specific eligible bridge work)
- substantial environmental impacts.
- anticipated controversy
- formal public hearings
- extensive (non-de minimis) right-of-way (ROW) acquisitions

The Regions may implement the construction of 2R projects using any of the following options, or a combination thereof:

- Standard letting process
- As part of a requirements contract
- An Office of General Service (OGS) Vendor in Place Paving (VPP) contract
- State forces

The 2R guidelines are approved for use on Federal and 100% State-funded projects. The Federal Highway Administration (FHWA) approved multiple-course overlay VPP projects for Federal-aid, provided they meet the requirements of this document. Maintenance and construction work performed by State forces is not reimbursable with Federal funds and must be accomplished with 100% State funds only.

In general, where the 2R policy is silent, follow standard Department guidance and policies. Where policies and guidance have specific information for 3R projects, it should be used for 2R projects as well.

2.0 RESPONSIBILITY

A project team (e.g., Regional Design; Traffic Engineering & Highway Safety; Maintenance; Planning and Program Management; Regional Structures, etc.) approach is recommended for carrying out the scoping and design of 2R projects. This will ensure that the concerns of the different regional groups are addressed.

The responsibility for programming and/or scheduling the safety work, as discussed in Section 4.0 of this policy, resides with the Regional Director and Regional Planning and Program

Manager. The Regional Director, or designee(s), determines the team representatives and completes the SAFETAP reporting form required by Section 7.0 of this policy.

3.0 REQUIREMENTS

3.1 Coordination

Coordination between the project team (e.g., Regional Design; Traffic Engineering & Highway Safety; Maintenance; Planning and Program Management; Regional Structures, etc.) is imperative for the successful completion of the 2R process. The objective is to expedite the project while avoiding conflicts with on-going or future projects.

Due to the limited scope of 2R projects, public participation generally involves the dissemination of information, such as, the project location, scope of work, duration of construction activities, and extent of traffic disruptions via press releases, notices, newsletters, or brochures. Informational meetings may also be used.

3.2 Screening/Scoping Checklist

The project team should complete the Screening/Scoping Checklist in Table 1 early in the Project Scoping Stage. 3R projects that pass the Screening/Scoping Checklist may be progressed as 2R projects. Regardless of funding, segments that do not meet all 7 of the screening requirements are not 2R projects and should be progressed as a 3R or other type of project.

3.3 Site Visit

A site visit by the project team is strongly recommended. The objective is to build consensus on the scope of improvements and make certain decisions in the field. This will expedite the process and reduce paper work, e-mails, memos, and meetings.

3.4 Documentation of Safety Related Work

A key element in this process is the documentation of safety related work. Table 2 summarizes the safety related items that need to be documented. This encourages the consideration of low cost safety and other operational improvements. It also replaces the comprehensive Design Report format used for 3R projects. Experts from the Regional Design, Maintenance, and Traffic Engineering & Highway Safety Groups are to visit the site as a Safety Audit Team and complete Table 2.

Recommended safety work that will not be addressed in accordance with Section 4.0 of this document is to be documented and explained in the Scope Summary Memorandum/Final Design Report (SSM/FDR).

Table 1 2R SCREENING/SCOPING CHECKLIST (Page 1 of 2)

PIN:	✓
<p>1. PAVEMENT TREATMENT SCREENING -</p> <ul style="list-style-type: none"> No full-depth replacement of pavement except in localized areas. At a minimum, shoulders, if any, must be restored to a satisfactory condition and be flush with the edge of traveled way 	
<p>2. CAPACITY SCREENING -</p> <p><u>Through Capacity</u> - A Level of Service (LOS) analysis is performed in accordance with HDM §5.2 . Note: secondary data may be used if approved by the RPPM.</p> <ul style="list-style-type: none"> For Interstates, the ETC+10 LOS must meet the criteria in HDM Chapter 2. Justify any non-standard LOS. For non-Interstates, the ETC+10 LOS is at least "D" or, the SSM/FDR documents that "The RPPM does not anticipate capacity improvements within ten years." <p><u>Intersection Capacity</u> - Intersections with observed operational or safety problems due to lack of turn lane or insufficient length of turn lane are analyzed in accordance with HDM §5.2 . Note: secondary data may be used if approved by the RPPM.</p> <ul style="list-style-type: none"> New turn lanes needed at intersections (signalized and unsignalized) are to: <ul style="list-style-type: none"> Meet the length required by HDM §5.10.5.5. B or include an explanation for non-conforming lengths in the SSM/FDR. Be a minimum of 3.0 m wide. As an exception, 2.75 m turn lanes may be justified as non-standard features where trucks and buses are prohibited from using the turn lane. Meet the air quality requirements of Environmental Procedure Manual (EPM) §1.1. 	
<p>3. GEOMETRIC DESIGN CRITERIA SCREENING -</p> <ul style="list-style-type: none"> Non-freeway routes: 3R standards referenced in HDM §7.3. Interstate System or other freeways: HDM §7.2.7. All non-standard geometric features are justified in accordance with HDM §2.8. The one page justification form in HDM Chapter 4, page 4-18 is recommended. Non-conforming features (HDM §5.1) are listed in the SSM/FDR with an explanation, as necessary. 	
<p>4. GENERAL DESIGN SCREENING -</p> <ul style="list-style-type: none"> Interstate System or other freeway routes meet the requirements of HDM §7.2, with the exception of §7.2.2 and §7.2.5. Roadside design meets the requirements for 3R projects in HDM §10.3. Bridge work is eligible for the element-specific process. (Refer to DPM Appendix B, §2.5, Table BSD-3 on page B-SD 12.) 	

NOTE: Only segments that meet all 7 of the checklist requirements can be progressed as 2R.

2R PROJECTS

Table 1 2R SCREENING CHECKLIST (Page 2 of 2)

<p>5. SAFETY SCREENING - A three-year accident history review indicates the following: (This can be quickly accomplished using readily available products from the Department's Safety Information Management System (SIMS) and the computerized TE-164 methodology).</p> <ul style="list-style-type: none"> • The overall three-year accident rate is less than the average rate for a comparable type of facility, as shown in SIMS. • The occurrence of Fatal, Injury, and combined Fatal+Injury accidents is not above average. • Locations listed on the regular Priority Investigation Location (PIL) list within the project limits are addressed. A PIL is considered addressed if it has been investigated in the last five years and the recommendations implemented or are incorporated into the proposed project. • Locations listed on the 'Fixed Object & Run-Off Road' PIL list within the project limits are addressed. • Locations listed on the Wet-Road PIL list within the project limits are addressed. <p>Note: Segments that do not meet all of the above shall undergo an accident analysis using the methodology in HDM §5.3. The accident analysis and recommendations should be attached to the SSM/FDR as an appendix. If, based on the accident analysis, it is decided to undertake a safety improvement that cannot be implemented in a 2R project, a 3R or other type of project should be progressed.</p>	
<p>6. PUBLIC OUTREACH SCREENING -</p> <ul style="list-style-type: none"> • Appropriate public involvement is done (See EI 01-020) and community concern are satisfactorily addressed. • No formal public hearings are required or held. 	
<p>7. ENVIRONMENTAL SCREENING -</p> <ul style="list-style-type: none"> • SEQR (All projects): The project is determined to be a SEQR Type II (i.e., complies with 17 NYCRR 15.14(d) and 17 NYCRR 15.14(e)(37)). • NEPA (Federal-aid projects): NEPA Assessment Checklist is completed and the project is determined to be a NEPA Class II Programmatic Categorical Exclusion. Categorical Exclusions that fail the programmatic checklist require documentation and FHWA approval and must be progressed as a 3R or other type of project. 	
<p>NOTE: Only segments that meet all 7 of the checklist requirements above can be progressed as 2R.</p>	
<p>FEDERAL-AID CONTRACT REQUIREMENTS -</p> <ul style="list-style-type: none"> • The project must be competitively let. • Work by State forces cannot be an integral part of the contract for the paving work (e.g., providing M&PT for paving work). • Vendor in Place Paving (VPP) projects let by the Office of General Services (OGS) must meet all Federal-aid contracting requirements. The Regional Maintenance Group or the Main Office Maintenance Division should be contacted. 	

Table 2 DOCUMENTATION OF SAFETY RELATED WORK (Page 1 of 2)

PIN =		Date =	
Safety Audit Team		Design =	
		Traffic =	
		Maintenance =	
✓	Element	Guidance	Comments
	Signing	<ul style="list-style-type: none"> Signs should be installed as needed in accordance with the NYS MUTCD. Review for condition (retroreflectivity), location, post type (breakaway or rigid), and appropriateness (need) Immediately notify the Resident Engineer of any missing regulatory or warning signs. 	
	Pavement Markings	Pavement markings should be installed in accordance with the NYS MUTCD. The adequacy of existing passing zones should be evaluated. Current EI's and specifications must be followed.	
	Delineation	Delineation should be installed per the NYS MUTCD	
	Traffic Signals	Signal heads should be upgraded to meet current requirements. Detection systems should be evaluated for actuated signals and considered for fixed-time signals. New traffic signals may be included provided they meet the signal warrants.	
	Shoulder Rumble Strips	On rural, high speed facilities (80 km/h or greater) consider in accordance with HDM §3.2.5.4.	
	Shoulder Widening	Non-freeway shoulders may be widened to 1.2 m for motor vehicle recovery, bicyclists, and pedestrians.	
	Lane Widening	Non-freeway lanes may be widened per HDM §7.3	
	Design Vehicle	Intersections should accommodate the design vehicle without encroachment into other travel lanes or turning lanes.	
	Driveways	Driveways shall meet the spirit and intent of the most recent "Policy and Standards for Entrances to State Highways."	
	Turn Lanes	Turn lanes should meet the requirements of HDM §5.10.5.5 B	
	Speed Change Lanes	Speed change lanes should meet AASHTO "Green Book" standards.	
	Sight Distance	Trim vegetation to improve substandard intersection sight distance, and horizontal and vertical stopping sight distance. Guidance: <ul style="list-style-type: none"> Intersection Sight Distance - HDM §5.10.5.1 A Passing Sight Distance - HDM §5.8.2.2 Horizontal & Sag Vertical SSD - HDM Chapter 2 and HDM §5.8.2.1 	
	Curbing	Curbing must meet the requirements of HDM §10.2.2.4.	
	Drainage	Closed drainage work may include new closed drainage structures, culverts, and the cleaning and repair of existing systems. Subsurface utility exploration should be considered for closed system drainage modifications.	
	Bicycle & Pedestrian	Sidewalk curb ramps and existing sidewalks must meet HDM Chapter 18 requirements. Consider cross walks and pedestrian push buttons at signals.	

Table 2 DOCUMENTATION OF SAFETY RELATED WORK (Page 2 of 2)

✓	Element	Guidance	Comments
	Superelevation	<p>Consult Figure 231-1 of the NYS MUTCD. Identify any current conditions which meet the criteria in §2.1 (i.e., curves where it is determined that existing operating speeds are now causing, or may in the future cause, vehicles to travel off the roadway or cross the centerline.) Sharp horizontal curves may be ball banked to help determine the need for additional superelevation.</p> <p>Existing superelevation should not be reduced unless excessive (>8%) and causing a safety problem.</p> <p>Install advisory speed signs and consider additional treatments (e.g., chevrons, roadside clearing), as needed.</p>	
	Shoulder Resurfacing	<p>Unpaved, stabilized shoulders should be paved in order to reinforce the edge of the traveled way, accommodate bicyclists, and increase safety. Where there is no curb, shoulder widths shall be a minimum of 0.6 m (1.2 m is desirable). Existing shoulders and curb offsets cannot be reduced.</p>	
	Clear Zone(s)	<p>Determine based on HDM §10.3.2.2 A.</p>	
	Fixed Objects	<p>Based on the criteria in §4.0 of this policy, remove, relocate, modify to make crash worthy, shield by guide rail/ crash cushion, or delineate any fixed objects that require remediation due to existing or potential safety implications (e.g., tree removal on the outside of a curve or installation of traversable driveway culvert end sections). The Region should determine the timing of the work based on the work involved, accident data and accident potential.</p> <p>For guidance on identifying fixed objects, refer to HDM §10.3.1.2 B.</p>	
	Guide Rail	<p>The following should be used to evaluate the need for guide rail and other roadside work.</p> <ul style="list-style-type: none"> • HDM §10.2.2.1 - point of need • HDM Table 10-7 - acceptable guide rail height • HDM §10.3.1.2 B - guidance on determining severely deteriorated guide rail and non-functional guide rail • HDM §10.2.2.3 and Table 10-3 - barrier deflection distance • HDM §10.2.2 - design of new guide rail • Current EIs and EBs. 	
	Bridge Rail Transitions	<p>The Regional Structures Group, Regional Design Group, SDCD and DQAB should be contacted, as necessary, to help identify substandard connections to bridge rail and for the recommended treatment.</p>	
	Other	<p>In general, where the 2R policy is silent, the project should follow standard Department guidance and policies. Where policies and guidance have specific information for 3R projects, it should be used for 2R projects as well. For example, the roadside design must meet the requirements referenced for 3R projects in HDM §10.3.</p>	

4.0 TIMING OF SAFETY WORK

Table 3 includes a list of typical safety work with the time frames of when the work is to be accomplished. The objective is to minimize the public's exposure to existing or potential safety problems. However, it may be beneficial to use separate contracts or state forces to perform some of the work. Use engineering judgement to determine the appropriate time frame for addressing the safety concerns.

5.0 2R PROJECT PROCESS AND DESIGN APPROVAL DOCUMENT

Follow the DPM Part II Steps, TEA-21 Matrix, and Appendix B, Section 2 with the following exceptions:

- For federal-aid, non-Interstate projects, the Regional Director, or designee is responsible for the retention of non-standard features and design approval.
- Requests for FHWA non-standard feature approval and design approval **for Interstate Projects** are sent directly to FHWA from the Regional Director, or designee.

2R projects use an SSM/FDR for scoping and design approval. The following material should be attached to the SSM/FDR, as appropriate:

- Location Map
- Preliminary Plans (when final plans are required by HDM Section 21.2.1)
- Pavement Evaluation & Treatment Selection
- Documentation of Safety Related Work
- 2R Screening Checklist
- Summary of Traffic Data & Capacity Analysis
- Summary of Accident Data and Analysis
- Nonstandard Feature Justifications
- NEPA Assessment Checklist (Note that 2R projects are not Element-Specific or Automatic Categorical Exclusions and must use the NEPA Assessment Checklist when federal funds are involved.)
- SEQR Type II Documentation

Table 3 Timing of Safety Work

PIN:		
Timing	Work	✓
To be done <i>before</i> the paving contract, as required	<ul style="list-style-type: none"> • Replace or install regulatory or warning signs as noted by regional forces. • Clean, repair or install any closed drainage system components. 	
To be done <i>during</i> the paving contract, as required	<ul style="list-style-type: none"> • Superelevation. • Shoulders. • Interim treatment for edge of pavement drop-offs shall be provided in accordance with §619-3.01 G.3 of the NYSDOT "Standard Specifications" and shall continue until the edge drop-offs are corrected. • Modify driveways to conform to the spirit and intent of the most recent "Policy and Standards for Entrances to State Highways." • Modify curbing to conform to HDM §10.2.2.4. 	
<p>To be done <i>before, during, or as soon as possible</i> following completion of the paving contract, as appropriate</p> <p>(i.e., The safety work should normally be completed within 2 months of the paving work, unless otherwise specified. As an exception, safety work needed to supplement paving work completed near the end of the construction season may be deferred to the first couple of months in the following construction season if its completion within 2 months is impractical. Pavement markings, regulatory signs, warning signs, critical guide rail, and other work to mitigate an accident problem are not included in this exception.)</p>	<ul style="list-style-type: none"> • Pavement markings (Pavement markings shall be in accordance with the Department Pavement Marking Policy. For temporary pavement markings, refer to specifications and current EBs and EIs for timing. In general, pavement markings are needed for all lanes opened to traffic at the end of the construction day/night.). • Shoulder Rumble strips. • Back-up shoulders to eliminate edge drop-offs. • Additional/updated regulatory, advisory and warning signs not addressed above (generally within 2 months). • Brush removal, clearing and grubbing. • Fixed objects: remove, relocate, modify to make crash worthy, shield by guide rail/crash cushion, or delineate. • Guide rail: <ul style="list-style-type: none"> ✓ reset guide rail that is or will be at the improper height. (ref. HDM Table 10-7). ✓ replace severely deteriorated and non-functional guide rail (ref. HDM §10.3.1.2 B). ✓ replace severely substandard guide rail and connections to bridge rail (e.g., concrete post/cable or railroad rail post/cable). (ref. HDM §10.3.1.2 B). ✓ install guide rail if missing or not extending to the point of need if a serious hazard, such as a cliff, deep body of water or liquid fuel tank is exposed and there is a reasonable expectation that vehicles will reach the hazard (ref. HDM §10.2.2.1). ✓ restore guide rail deflection distance through clearing and grubbing. (Ref. HDM §10.2.2.3 & Table 10-3) • Delineation. 	
<p>To be done <i>before, during, or in a timely manner</i> following the completion of paving</p> <p>(i.e., within 18 months of the paving work)</p>	<ul style="list-style-type: none"> • Guide rail not addressed under the "as soon as possible" work noted above. • Replace any missing or damaged reference markers. • Fixed objects which cannot be practically addressed as soon as possible. • Install guide signs/route markers, if needed. 	

6.0 FINAL DESIGN

Refer to the DPM and HDM Chapter 21 for the final design requirements for Department let projects. Note that plans are required for permanent construction activities per HDM Section 21.2.1. When work is performed by State forces, the Region is to develop plans for permanent construction activities, consistent with HDM Chapter 21, to serve as a permanent record of the work.

7.0 SAFETAP REPORTING

A 2R Safety Appurtenance (SAFETAP) Reporting Form shall be completed by each Regional Office at the end of each State fiscal year. The form is to be submitted to the Safety Program Management Bureau of the Traffic Engineering & Highway Safety Division. A sample form is included as Attachment 1. The following information is to be reported in the form:

- A listing of all 2R sites paved. This listing should include the beginning and ending reference marker for each site.
- The fund source used for the paving work.
- The year and month that the paving was done.
- The reference markers and description of improvements made (to be made) after the paving work was done. A site visit is to be performed to ensure the safety issues have been properly addressed.
- The year and month that the improvements were made or scheduled to be completed, in accordance with Section 4.0 of this document.

8.0 REFERENCES

1. Design Procedure Manual, 1999 (including subsequent revisions), Design Quality Assurance Bureau, New York State Department of Transportation, State Campus, Albany, NY 12232.
2. Highway Design Manual, 2000 (including subsequent revisions), Design Quality Assurance Bureau, New York State Department of Transportation, State Campus, Albany, NY 12232.
3. A Policy on Geometric Design of Highways and Streets, 2001, American Association of State Highway and Transportation Officials, Suite 225, 444 North Capitol Street, N.W., Washington, D.C. 20001.
4. Highway Capacity Manual, 2000, Transportation Research Board, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C., 20418.
5. Comprehensive Pavement Design Manual, June 2000, Technical Services Division, New York State Department of Transportation, State Campus, Albany, NY, 12232.
6. New York State Manual of Uniform Traffic Control Devices, April, 2001, Traffic Engineering and Highway Safety Division, New York State Department of Transportation, State Campus, Albany, NY 12232.
7. Roadside Design Guide, 1996, American Association of State Highway and Transportation Officials, Suite 225, 444 North Capitol Street, N.W., Washington, D.C. 20001.
8. Policy and Standards for Entrances to State Highways, 1998, Traffic Engineering and Safety Division, New York State Department of Transportation, State Campus, Albany, NY 12232.
9. Highway Safety Improvement Program: Procedures and Techniques, 1989, Traffic Engineering and Safety Division, New York State Department of Transportation, State Campus, Albany, NY 12232.
10. Environmental Procedures Manual, 1995 (including subsequent revisions), Environmental Analysis Bureau, New York State Department of Transportation, State Campus, Albany, NY, 12232.
11. Manual on Uniform Traffic Control Devices, 2001, U.S. Department of Transportation, Federal Highway Administration, for sale by the Government Printing Office (GPO), Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954.

2R PROJECTS

ATTACHMENT 1
 SAMPLE
 2R SAFETAP REPORTING FORM
 COMPLETED SAFETY IMPROVEMENTS

2R Site	Fund Source	Resurfacing Complete	Improvements	Completion Date Month/Year
1. 25 0303 1101 1161 1137 1138 1148 1149	State	May, 2002	Post Mounted Delineation Post Mounted Delineation	June, 2002 June, 2002
2. 25A 0302 1068 1087 1077 1078	Federal	June, 2002	Superelevation	June, 2002
3. 27 0304 1139 1146 1139 1141 1141 1146	State	July, 2002	Guide Rail Replacement Clear zone widening	October, 2002 October, 2002
4. 101 0301 1004 1012 1006 1008 1010 1011	Federal	May, 2002	Chevrons Chevrons	August, 2002 August, 2002